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RADC-TR-67-71, Volume II  
Final Report



# ACCELERATED TESTING OF HIGH RELIABILITY PARTS

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G. Bost

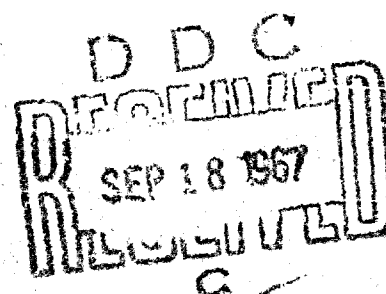
General Electric Company

TECHNICAL REPORT NO. RADC-TR- 67-71

June 1967

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# SECTION 1

## INTRODUCTION

This report is the final Technical Documentary Report of Contract AF30(602)-3968, Task 551902 and Project No. 5519.

The purpose of the program was to develop accelerated testing techniques for high reliability parts and to define long-term degradation mechanisms for these parts. The parts which were tested during the program are shown in Table 1-1 with the internal GE high reliability designation, the closest commercial designation, and the manufacturer.

Table 1-1. Description of Parts Tested

R NUMBER	DESCRIPTION	CLOSEST COMMERCIAL DESIGNATION
<u>Resistors</u>		
R2013	Ni Cr Metal Film, 1/8 Watt	XLT, IRC
R2048	Tin Oxide Film, 1/8 Watt	NF80, Corning
<u>Capacitors</u>		
R2045	Fixed Glass Dielectric	CYFR, Corning
<u>Diodes</u>		
R2008 P5, P10	Silicon, Regulator	1N751A, 752A, CDC
R2010 P1	Silicon, VHF	1N251, CDC
R2011 P1	Silicon, Computer	1N442A, CDC
<u>Transistors</u>		
R2004 P1	NPN, Silicon, 3 Watt	2N1613 FSC
R2005 P1	PNP, Silicon, 2 Watt	2N1132 FSC
R2026 P1	NPN, Silicon, 2 Watt	2N703 FSC
R2050 P1	NPN, Silicon, 4 Watt	2N657 FSC
R4041 P1	PNP, Silicon, 1 Watt	2N225 FSC

The parts under study were originally purchased for a reliability evaluation program during Project Advent (Contract AF04(647)-476). The reliability test and evaluation portion of the

project was initiated in 1960 to determine and specify procurement methods, screening techniques, and test and evaluation programs which would provide assurance that the hardware for the flyable satellites would meet the program objective of a 3-year life in a nonmaintainable space environment. Accelerated step-stress and constant stress tests were performed on electronic parts during the program to provide data and information which would lead to the formulation of design-life data, and screening tests. The test program continued until September, 1963 at which time the parts on life tests had accumulated 6000 to 10,000 hours each at various applied stresses and environmental conditions. The parts were then placed at storage conditions of 25<sup>0</sup> Celsius and zero power for ten months and were reactivated to the same prior test conditions for a 1 year period in June, 1964 as a requirement of contract AF 30(602)-3415. The step-stress tests which were completed during the Advent Program provided data which was analyzed during the initial period of the contract. The combination of the results of the step-stress tests and the constant stress tests formed the basis for the determination of the measurement techniques for controllable accelerated testing techniques recommended as a result of the contract. The parts continued on Life Test during the period of June 65 to Dec 65 - the starting date for this one year contract (AF 30(602)-3968). The constant stress tests have accumulated 25,000 to 30,000 hours of test time and the step-stress tests were completed during the previous contracts. The tests were continued for a one year period to provide greater confidence in the test technique and to provide for further analysis of degradation trends.

The definition and establishment of accelerated testing methods and techniques for electronic parts must be based upon the actual failure mechanisms which exist in the part. Consequently this program consists of two distinct yet interrelated investigations. The first being the accelerated test program above and the second is the definition of the physical degradation mechanisms which the parts exhibit during the tests. Laboratory investigations were conducted on untested and on failed parts during the course of the program to identify the part failure mechanisms. In addition, a separate physics of failure investigation was instituted during this contract on inorganic dielectric capacitors.

The presentation of the accelerated testing concept, approach, and results are shown in Section 2. The results of the studies of the capacitor failure mechanisms are shown in Section 3 and the Summary and Conclusions are presented in Section 4. Appendix A provides a general description of the test and analysis activity. Volume II of this report contains the data from the constant stress tests together with charts of parameter trends.

#### NOTE

Unless otherwise indicated, C is an abbreviation for Celsius and not Centigrade.



## SECTION 2

### DESCRIPTION OF DATA FORMATS

The data in Section 3 contains information on the constant stress long life tests performed on resistors, capacitors, transistors, and diodes. Each page includes a graphic presentation of the average trend of the parts test data and a listing of any failures which occurred during test.

All charts reflect the accumulated test hours with the maximum, average, and minimum readings taken at each test time for the various parameters measured. Stress conditions, measurement conditions, and the parameters measured are noted on each figure. In addition to the accumulated test time, the time at which the parts were placed at storage conditions of 25 Celsius and zero power for ten months is shown.

The part type under test is shown at the bottom of each page.

All failures occurring during the test of each part type are indicated by the time of failure and frequency.

Additional information is available from the computer printout as follows:

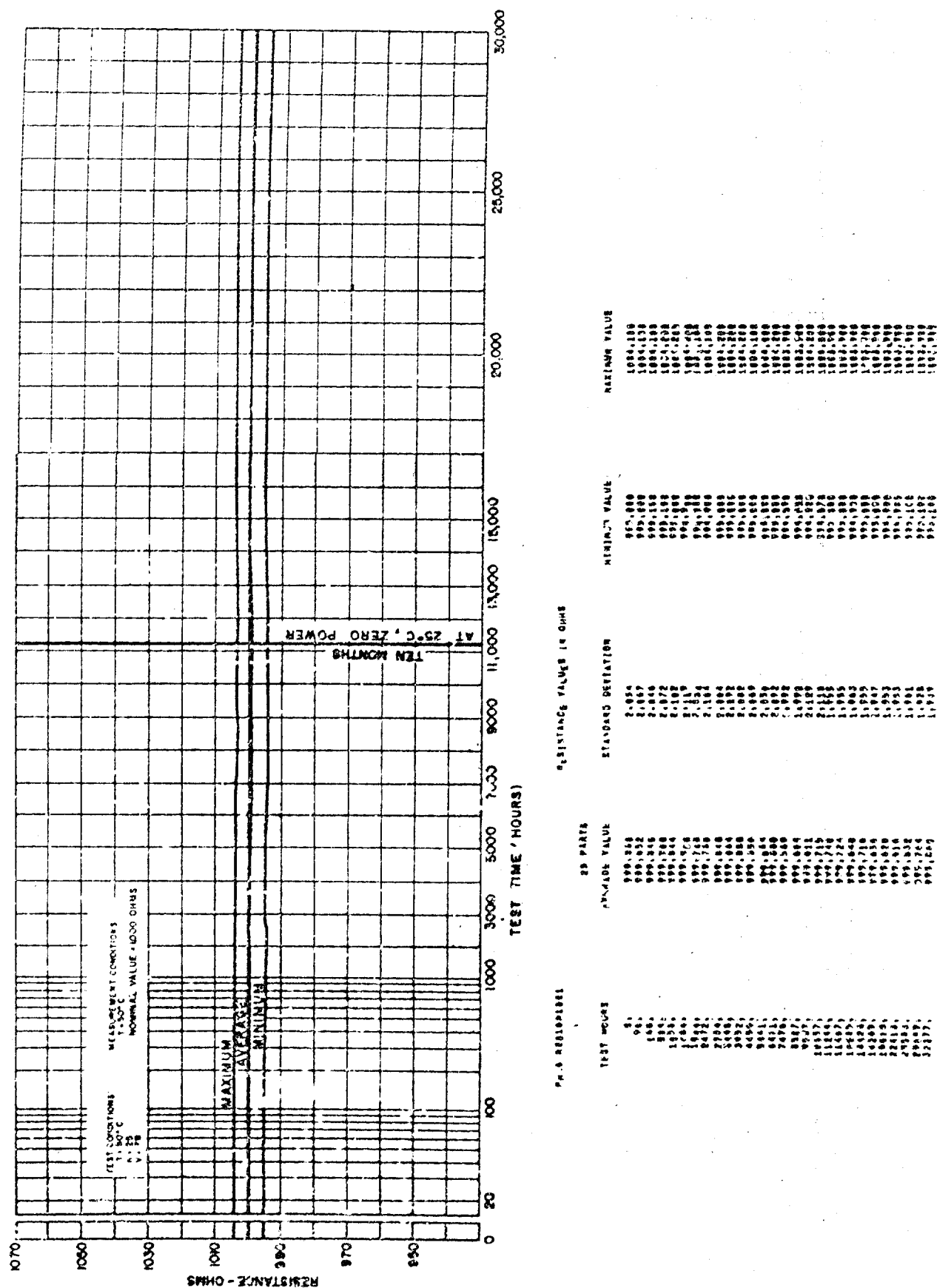
- a. Readings for each part at each test period by serial numbers.
- b. Readings in ascending order of value (minimum to maximum) with serial numbers.
- c. The change in reading between time periods for each serial number.
- d. The change (percent) in reading from initial value.
- e. The hours at which the change (percent) from initial value reaches the percentages indicated in the computer print-out.
- f. The natural logarithm of individual readings at each time period for each serial number.

Items a, c, d and f include a summary for each time period which gives the average value, standard deviation, minimum value, and maximum value. Items b, e and g were not included in previous computer printouts and have replaced them.

- a. Sums of deltas for each part at each time period.
- b. The absolute deltas for each part at each time period.
- c. The absolute ratio for each part at each time period.

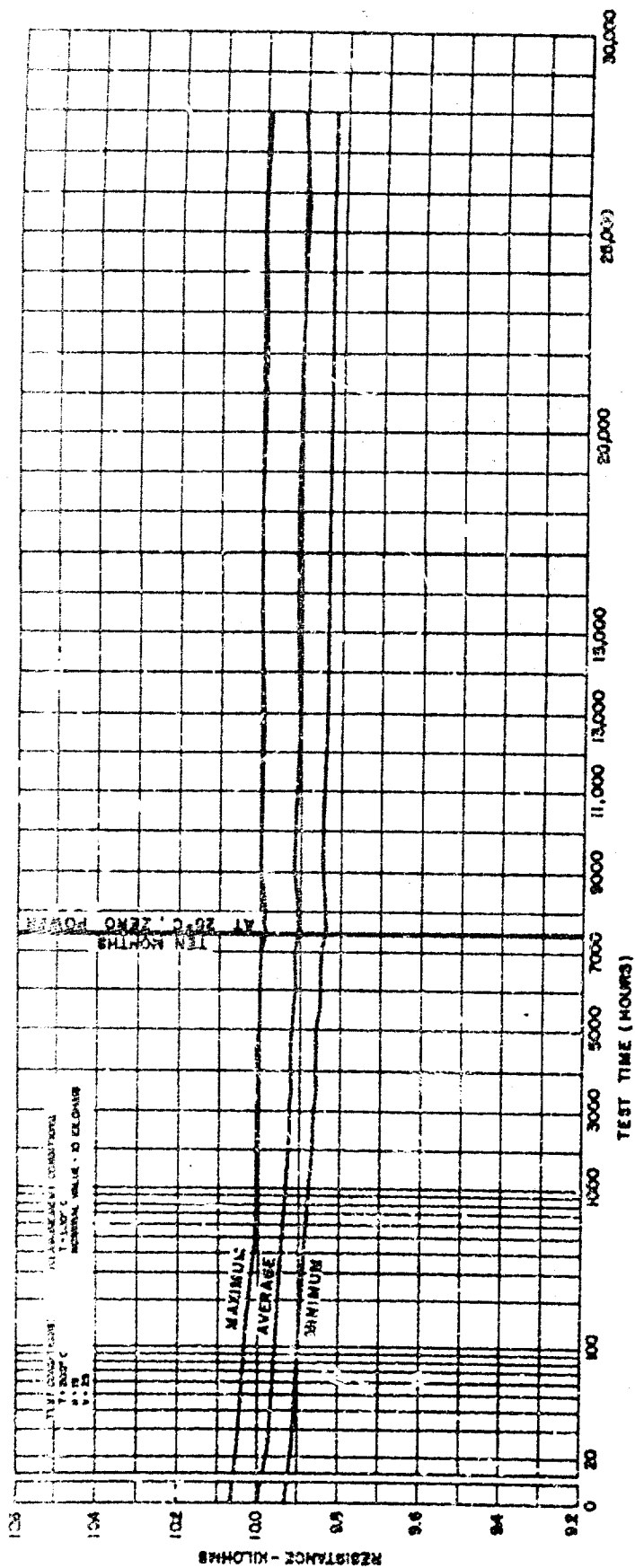
The raw data has been transferred to RALDC for inclusion in the AF reliability control data system.

SECTION 3  
DATA CHARTS



No Failures

Figure 3-1. R2016P1001 - Phase VI - Resistance Variation

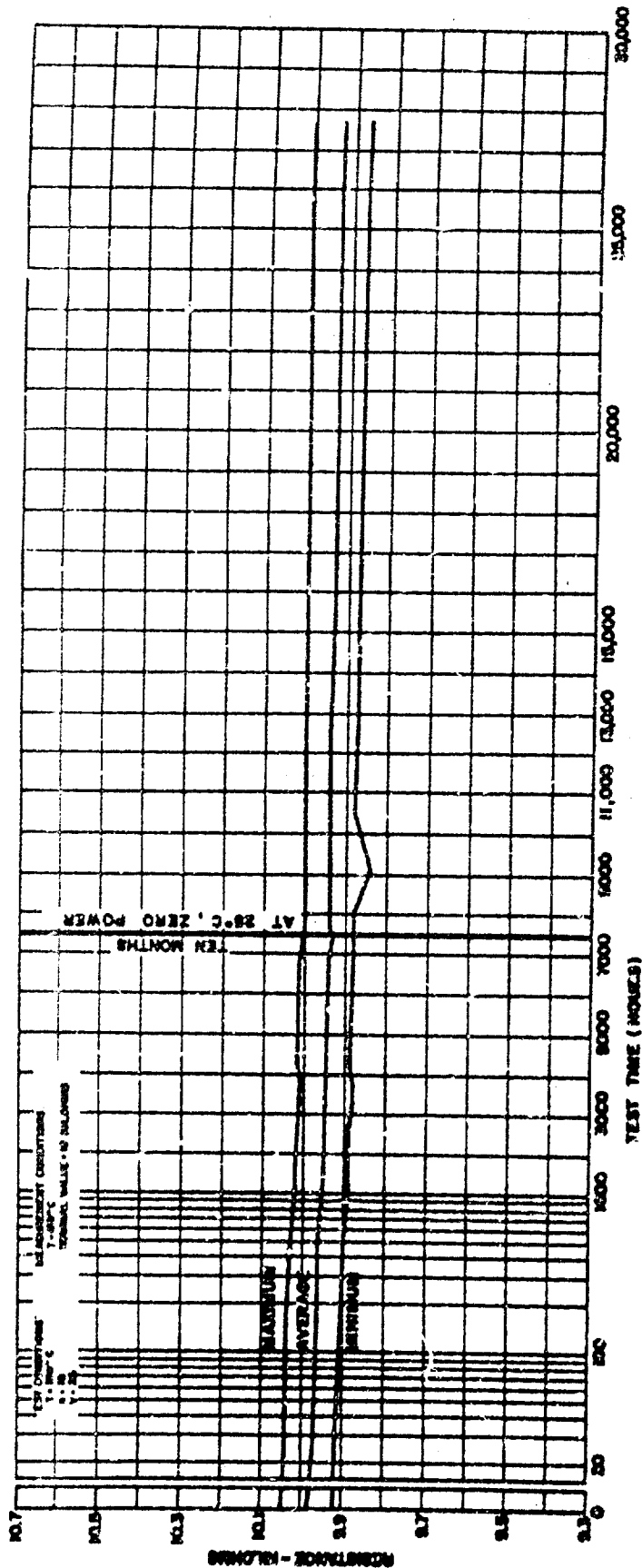


RESISTANCE VALUES IN K OHMS

TEST POINT	AVERAGE $R_{AC}$	MAXIMUM $R_{AC}$	MINIMUM $R_{AC}$
1	0.002	0.002	0.002
2	0.002	0.002	0.002
3	0.002	0.002	0.002
4	0.002	0.002	0.002
5	0.002	0.002	0.002
6	0.002	0.002	0.002
7	0.002	0.002	0.002
8	0.002	0.002	0.002
9	0.002	0.002	0.002
10	0.002	0.002	0.002
11	0.002	0.002	0.002
12	0.002	0.002	0.002
13	0.002	0.002	0.002
14	0.002	0.002	0.002
15	0.002	0.002	0.002
16	0.002	0.002	0.002
17	0.002	0.002	0.002
18	0.002	0.002	0.002
19	0.002	0.002	0.002
20	0.002	0.002	0.002
21	0.002	0.002	0.002
22	0.002	0.002	0.002
23	0.002	0.002	0.002
24	0.002	0.002	0.002
25	0.002	0.002	0.002
26	0.002	0.002	0.002
27	0.002	0.002	0.002
28	0.002	0.002	0.002
29	0.002	0.002	0.002
30	0.002	0.002	0.002
31	0.002	0.002	0.002
32	0.002	0.002	0.002
33	0.002	0.002	0.002
34	0.002	0.002	0.002
35	0.002	0.002	0.002
36	0.002	0.002	0.002
37	0.002	0.002	0.002
38	0.002	0.002	0.002
39	0.002	0.002	0.002
40	0.002	0.002	0.002
41	0.002	0.002	0.002
42	0.002	0.002	0.002
43	0.002	0.002	0.002
44	0.002	0.002	0.002
45	0.002	0.002	0.002
46	0.002	0.002	0.002
47	0.002	0.002	0.002
48	0.002	0.002	0.002
49	0.002	0.002	0.002
50	0.002	0.002	0.002
51	0.002	0.002	0.002
52	0.002	0.002	0.002
53	0.002	0.002	0.002
54	0.002	0.002	0.002
55	0.002	0.002	0.002
56	0.002	0.002	0.002
57	0.002	0.002	0.002
58	0.002	0.002	0.002
59	0.002	0.002	0.002
60	0.002	0.002	0.002
61	0.002	0.002	0.002
62	0.002	0.002	0.002
63	0.002	0.002	0.002
64	0.002	0.002	0.002
65	0.002	0.002	0.002
66	0.002	0.002	0.002
67	0.002	0.002	0.002
68	0.002	0.002	0.002
69	0.002	0.002	0.002
70	0.002	0.002	0.002
71	0.002	0.002	0.002
72	0.002	0.002	0.002
73	0.002	0.002	0.002
74	0.002	0.002	0.002
75	0.002	0.002	0.002
76	0.002	0.002	0.002
77	0.002	0.002	0.002
78	0.002	0.002	0.002
79	0.002	0.002	0.002
80	0.002	0.002	0.002
81	0.002	0.002	0.002
82	0.002	0.002	0.002
83	0.002	0.002	0.002
84	0.002	0.002	0.002
85	0.002	0.002	0.002
86	0.002	0.002	0.002
87	0.002	0.002	0.002
88	0.002	0.002	0.002
89	0.002	0.002	0.002
90	0.002	0.002	0.002
91	0.002	0.002	0.002
92	0.002	0.002	0.002
93	0.002	0.002	0.002
94	0.002	0.002	0.002
95	0.002	0.002	0.002
96	0.002	0.002	0.002
97	0.002	0.002	0.002
98	0.002	0.002	0.002
99	0.002	0.002	0.002
100	0.002	0.002	0.002

See Page 10

Figure 3-2. R2016P1002 - Phase IV - Resistance Variation



PH 5 SPECIFICATION

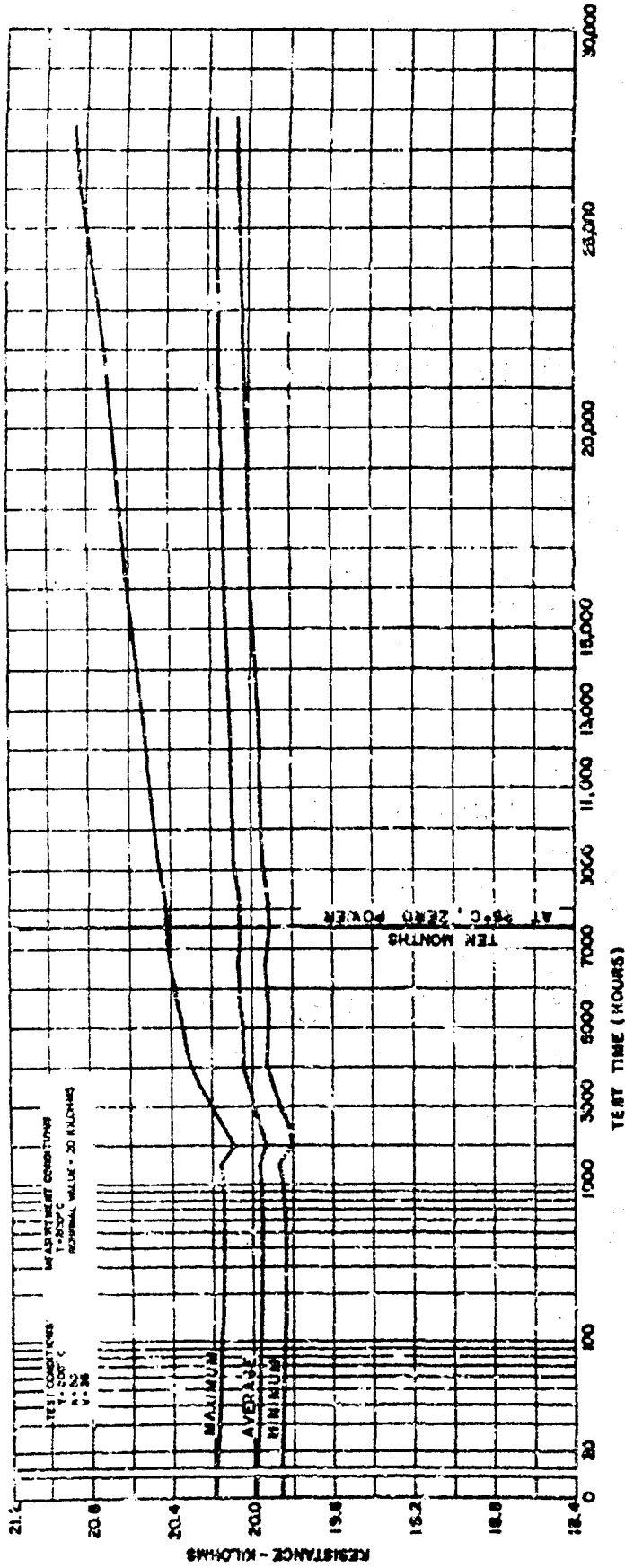
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DESIGNATION VALUES IN % RMS

TEST NAME	AMPLITUDE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
1.	5.004	0.004	0.000	10.000
2.	4.004	0.004	0.000	10.000
3.	3.004	0.004	0.000	10.000
4.	2.004	0.004	0.000	10.000
5.	1.004	0.004	0.000	10.000
6.	0.504	0.004	0.000	10.000
7.	0.254	0.004	0.000	10.000
8.	0.125	0.004	0.000	10.000
9.	0.062	0.004	0.000	10.000
10.	0.031	0.004	0.000	10.000
11.	0.016	0.004	0.000	10.000
12.	0.008	0.004	0.000	10.000
13.	0.004	0.004	0.000	10.000
14.	0.002	0.004	0.000	10.000
15.	0.001	0.004	0.000	10.000
16.	0.000	0.004	0.000	10.000
17.	0.000	0.004	0.000	10.000
18.	0.000	0.004	0.000	10.000
19.	0.000	0.004	0.000	10.000
20.	0.000	0.004	0.000	10.000
21.	0.000	0.004	0.000	10.000
22.	0.000	0.004	0.000	10.000
23.	0.000	0.004	0.000	10.000
24.	0.000	0.004	0.000	10.000
25.	0.000	0.004	0.000	10.000
26.	0.000	0.004	0.000	10.000
27.	0.000	0.004	0.000	10.000
28.	0.000	0.004	0.000	10.000
29.	0.000	0.004	0.000	10.000
30.	0.000	0.004	0.000	10.000

No Failures

Figure 3-3. R2016P1002 - Phase V - Resistance Variation



PHASE IV - RESISTANCE VARIATION

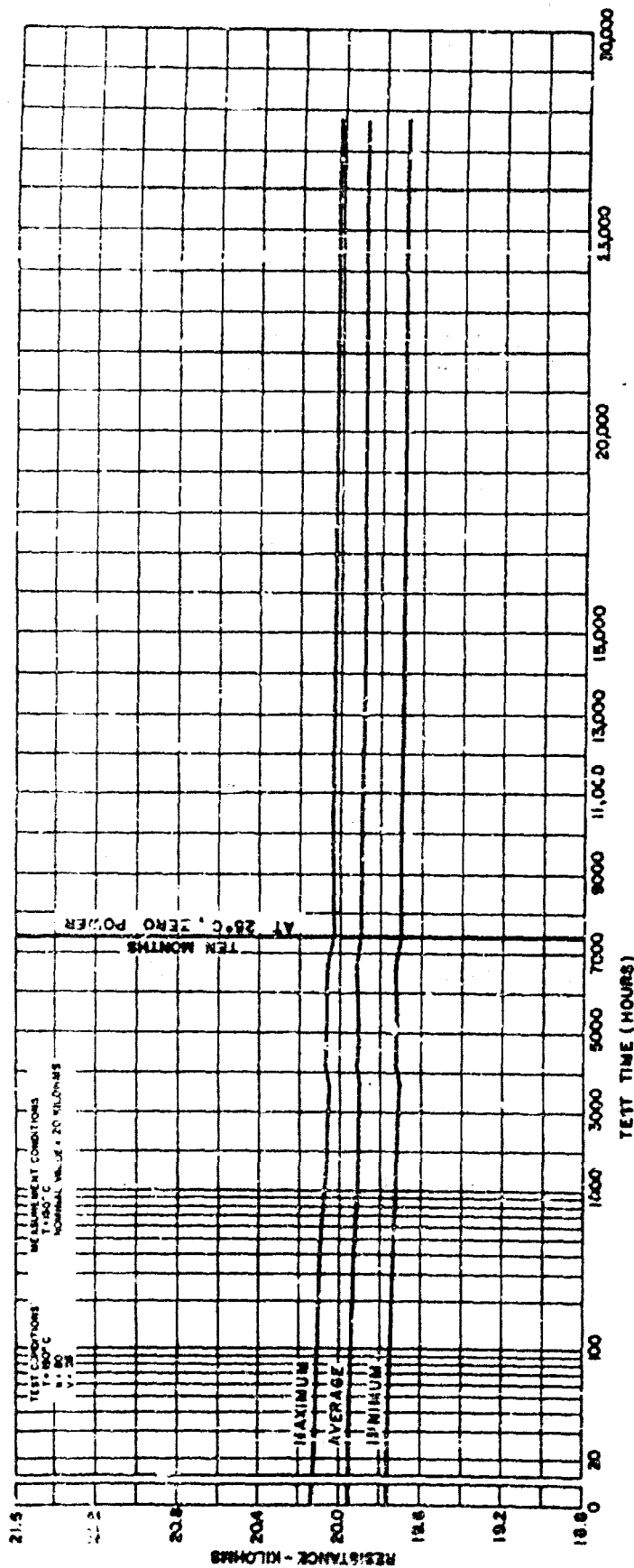
RESISTANCE VALUES IN OHMS

56 PARTS

TEST GROUP	TEST VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
1	10.000	0.074	9.925	10.075
2	10.000	0.074	9.925	10.075
3	10.000	0.074	9.925	10.075
4	10.000	0.074	9.925	10.075
5	10.000	0.074	9.925	10.075
6	10.000	0.074	9.925	10.075
7	10.000	0.074	9.925	10.075
8	10.000	0.074	9.925	10.075
9	10.000	0.074	9.925	10.075
10	10.000	0.074	9.925	10.075
11	10.000	0.074	9.925	10.075
12	10.000	0.074	9.925	10.075
13	10.000	0.074	9.925	10.075
14	10.000	0.074	9.925	10.075
15	10.000	0.074	9.925	10.075
16	10.000	0.074	9.925	10.075
17	10.000	0.074	9.925	10.075
18	10.000	0.074	9.925	10.075
19	10.000	0.074	9.925	10.075
20	10.000	0.074	9.925	10.075
21	10.000	0.074	9.925	10.075
22	10.000	0.074	9.925	10.075
23	10.000	0.074	9.925	10.075
24	10.000	0.074	9.925	10.075
25	10.000	0.074	9.925	10.075
26	10.000	0.074	9.925	10.075
27	10.000	0.074	9.925	10.075
28	10.000	0.074	9.925	10.075
29	10.000	0.074	9.925	10.075
30	10.000	0.074	9.925	10.075
31	10.000	0.074	9.925	10.075
32	10.000	0.074	9.925	10.075
33	10.000	0.074	9.925	10.075
34	10.000	0.074	9.925	10.075
35	10.000	0.074	9.925	10.075
36	10.000	0.074	9.925	10.075
37	10.000	0.074	9.925	10.075
38	10.000	0.074	9.925	10.075
39	10.000	0.074	9.925	10.075
40	10.000	0.074	9.925	10.075
41	10.000	0.074	9.925	10.075
42	10.000	0.074	9.925	10.075
43	10.000	0.074	9.925	10.075
44	10.000	0.074	9.925	10.075
45	10.000	0.074	9.925	10.075
46	10.000	0.074	9.925	10.075
47	10.000	0.074	9.925	10.075
48	10.000	0.074	9.925	10.075
49	10.000	0.074	9.925	10.075
50	10.000	0.074	9.925	10.075
51	10.000	0.074	9.925	10.075
52	10.000	0.074	9.925	10.075
53	10.000	0.074	9.925	10.075
54	10.000	0.074	9.925	10.075
55	10.000	0.074	9.925	10.075
56	10.000	0.074	9.925	10.075

See Failure

Figure 3-4. R2016P2002 - Phase IV - Resistance Variation



PN 5 5210P2002

50 PARTS

RESISTANCE VALUE - IN K OHMS

TEST POINTS	AVERAGE VALUE	5% QUANT DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
0	19.950	0.005	19.772	20.128
24	19.950	0.005	19.772	20.128
144	19.950	0.005	19.772	20.128
324	19.950	0.005	19.772	20.128
504	19.950	0.005	19.772	20.128
684	19.950	0.005	19.772	20.128
864	19.950	0.005	19.772	20.128
1044	19.950	0.005	19.772	20.128
1224	19.950	0.005	19.772	20.128
1404	19.950	0.005	19.772	20.128
1584	19.950	0.005	19.772	20.128
1764	19.950	0.005	19.772	20.128
1944	19.950	0.005	19.772	20.128
2124	19.950	0.005	19.772	20.128
2304	19.950	0.005	19.772	20.128
2484	19.950	0.005	19.772	20.128
2664	19.950	0.005	19.772	20.128
2844	19.950	0.005	19.772	20.128
3024	19.950	0.005	19.772	20.128
3204	19.950	0.005	19.772	20.128
3384	19.950	0.005	19.772	20.128
3564	19.950	0.005	19.772	20.128
3744	19.950	0.005	19.772	20.128
3924	19.950	0.005	19.772	20.128
4104	19.950	0.005	19.772	20.128
4284	19.950	0.005	19.772	20.128
4464	19.950	0.005	19.772	20.128
4644	19.950	0.005	19.772	20.128
4824	19.950	0.005	19.772	20.128
5004	19.950	0.005	19.772	20.128
5184	19.950	0.005	19.772	20.128
5364	19.950	0.005	19.772	20.128
5544	19.950	0.005	19.772	20.128
5724	19.950	0.005	19.772	20.128
5904	19.950	0.005	19.772	20.128
6084	19.950	0.005	19.772	20.128
6264	19.950	0.005	19.772	20.128
6444	19.950	0.005	19.772	20.128
6624	19.950	0.005	19.772	20.128
6804	19.950	0.005	19.772	20.128
6984	19.950	0.005	19.772	20.128
7164	19.950	0.005	19.772	20.128
7344	19.950	0.005	19.772	20.128
7524	19.950	0.005	19.772	20.128
7704	19.950	0.005	19.772	20.128
7884	19.950	0.005	19.772	20.128
8064	19.950	0.005	19.772	20.128
8244	19.950	0.005	19.772	20.128
8424	19.950	0.005	19.772	20.128
8604	19.950	0.005	19.772	20.128
8784	19.950	0.005	19.772	20.128
8964	19.950	0.005	19.772	20.128
9144	19.950	0.005	19.772	20.128
9324	19.950	0.005	19.772	20.128
9504	19.950	0.005	19.772	20.128
9684	19.950	0.005	19.772	20.128
9864	19.950	0.005	19.772	20.128
10044	19.950	0.005	19.772	20.128

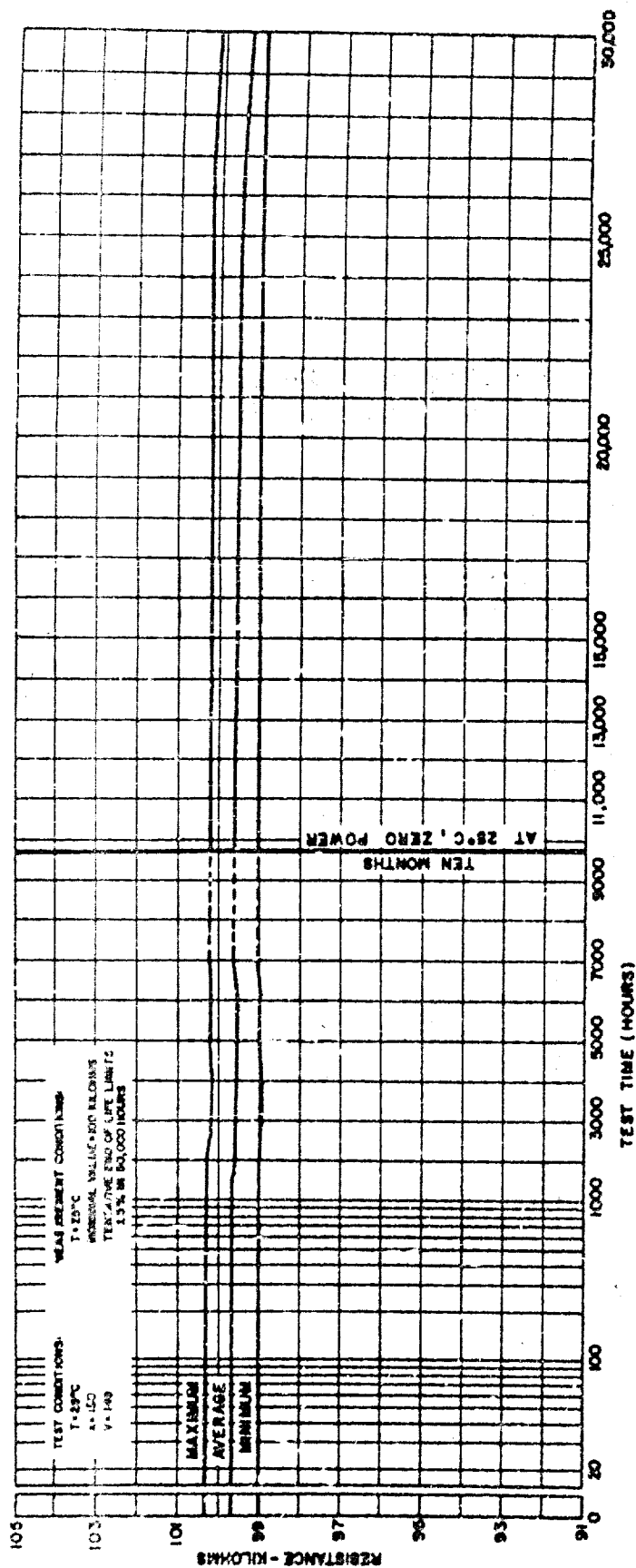
No Failure

Figure 3-5. R2016P2002 - Phase V - Resistance Variation





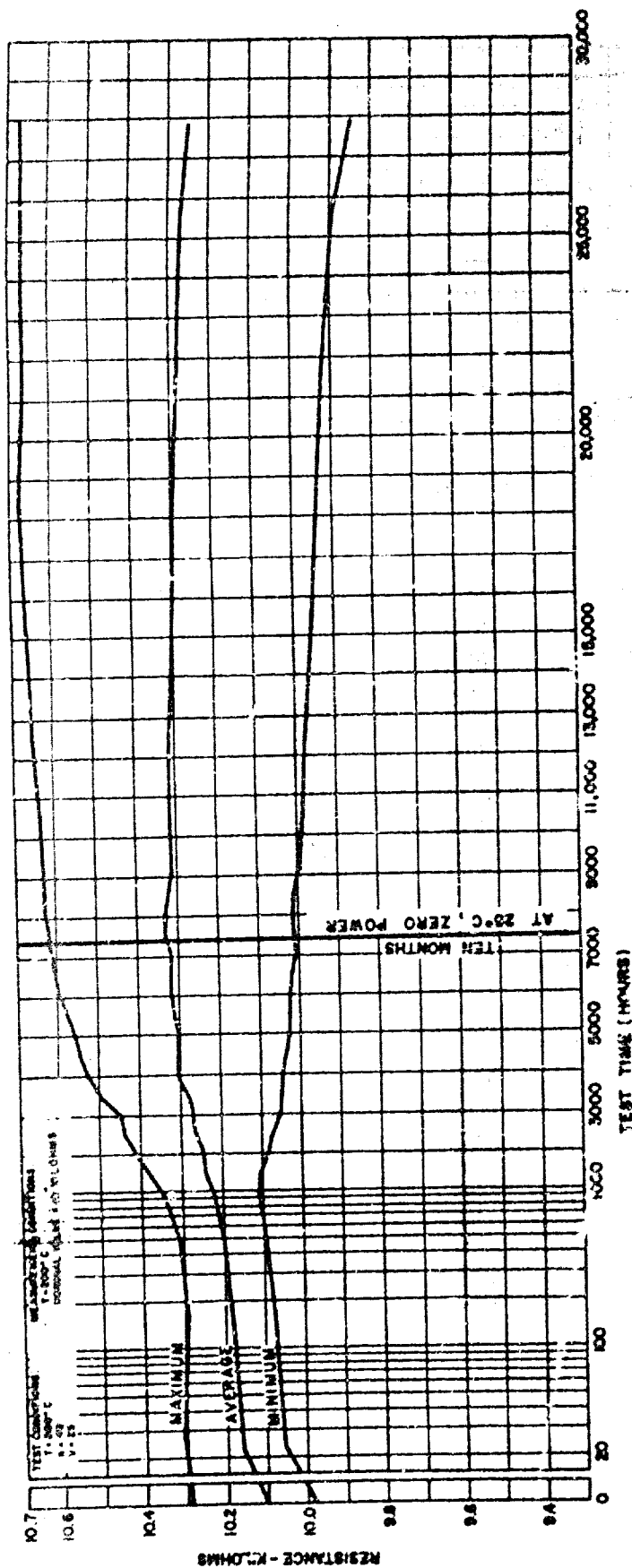




AMBIENT LIFE HOURS	TEST HOURS	100 PARTS AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
81	99.000	99.000	0.000	99.000	100.000
24	99.000	99.000	0.000	99.000	100.000
100	99.000	99.000	0.000	99.000	100.000
200	99.000	99.000	0.000	99.000	100.000
300	99.000	99.000	0.000	99.000	100.000
400	99.000	99.000	0.000	99.000	100.000
500	99.000	99.000	0.000	99.000	100.000
600	99.000	99.000	0.000	99.000	100.000
700	99.000	99.000	0.000	99.000	100.000
800	99.000	99.000	0.000	99.000	100.000
900	99.000	99.000	0.000	99.000	100.000
1000	99.000	99.000	0.000	99.000	100.000
1100	99.000	99.000	0.000	99.000	100.000
1200	99.000	99.000	0.000	99.000	100.000
1300	99.000	99.000	0.000	99.000	100.000
1400	99.000	99.000	0.000	99.000	100.000
1500	99.000	99.000	0.000	99.000	100.000
1600	99.000	99.000	0.000	99.000	100.000
1700	99.000	99.000	0.000	99.000	100.000
1800	99.000	99.000	0.000	99.000	100.000
1900	99.000	99.000	0.000	99.000	100.000
2000	99.000	99.000	0.000	99.000	100.000
2100	99.000	99.000	0.000	99.000	100.000
2200	99.000	99.000	0.000	99.000	100.000
2300	99.000	99.000	0.000	99.000	100.000
2400	99.000	99.000	0.000	99.000	100.000
2500	99.000	99.000	0.000	99.000	100.000
2600	99.000	99.000	0.000	99.000	100.000
2700	99.000	99.000	0.000	99.000	100.000
2800	99.000	99.000	0.000	99.000	100.000
2900	99.000	99.000	0.000	99.000	100.000
3000	99.000	99.000	0.000	99.000	100.000

Figure 3-8. R2016P1003 - Ambient Life - Resistance Variation





PHASE 4 - R2048P1002

RESISTANCE VALUES IN K OHMS

TEST NUMBER	AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
1	10.172	0.002	9.972	10.286
2	10.175	0.003	9.977	10.384
3	10.175	0.003	9.977	10.384
4	10.175	0.003	9.977	10.384
5	10.175	0.003	9.977	10.384
6	10.175	0.003	9.977	10.384
7	10.175	0.003	9.977	10.384
8	10.175	0.003	9.977	10.384
9	10.175	0.003	9.977	10.384
10	10.175	0.003	9.977	10.384
11	10.175	0.003	9.977	10.384
12	10.175	0.003	9.977	10.384
13	10.175	0.003	9.977	10.384
14	10.175	0.003	9.977	10.384
15	10.175	0.003	9.977	10.384
16	10.175	0.003	9.977	10.384
17	10.175	0.003	9.977	10.384
18	10.175	0.003	9.977	10.384
19	10.175	0.003	9.977	10.384
20	10.175	0.003	9.977	10.384
21	10.175	0.003	9.977	10.384
22	10.175	0.003	9.977	10.384
23	10.175	0.003	9.977	10.384
24	10.175	0.003	9.977	10.384
25	10.175	0.003	9.977	10.384
26	10.175	0.003	9.977	10.384
27	10.175	0.003	9.977	10.384
28	10.175	0.003	9.977	10.384
29	10.175	0.003	9.977	10.384
30	10.175	0.003	9.977	10.384
31	10.175	0.003	9.977	10.384
32	10.175	0.003	9.977	10.384
33	10.175	0.003	9.977	10.384
34	10.175	0.003	9.977	10.384
35	10.175	0.003	9.977	10.384
36	10.175	0.003	9.977	10.384
37	10.175	0.003	9.977	10.384
38	10.175	0.003	9.977	10.384
39	10.175	0.003	9.977	10.384
40	10.175	0.003	9.977	10.384
41	10.175	0.003	9.977	10.384
42	10.175	0.003	9.977	10.384
43	10.175	0.003	9.977	10.384
44	10.175	0.003	9.977	10.384
45	10.175	0.003	9.977	10.384
46	10.175	0.003	9.977	10.384
47	10.175	0.003	9.977	10.384
48	10.175	0.003	9.977	10.384
49	10.175	0.003	9.977	10.384
50	10.175	0.003	9.977	10.384

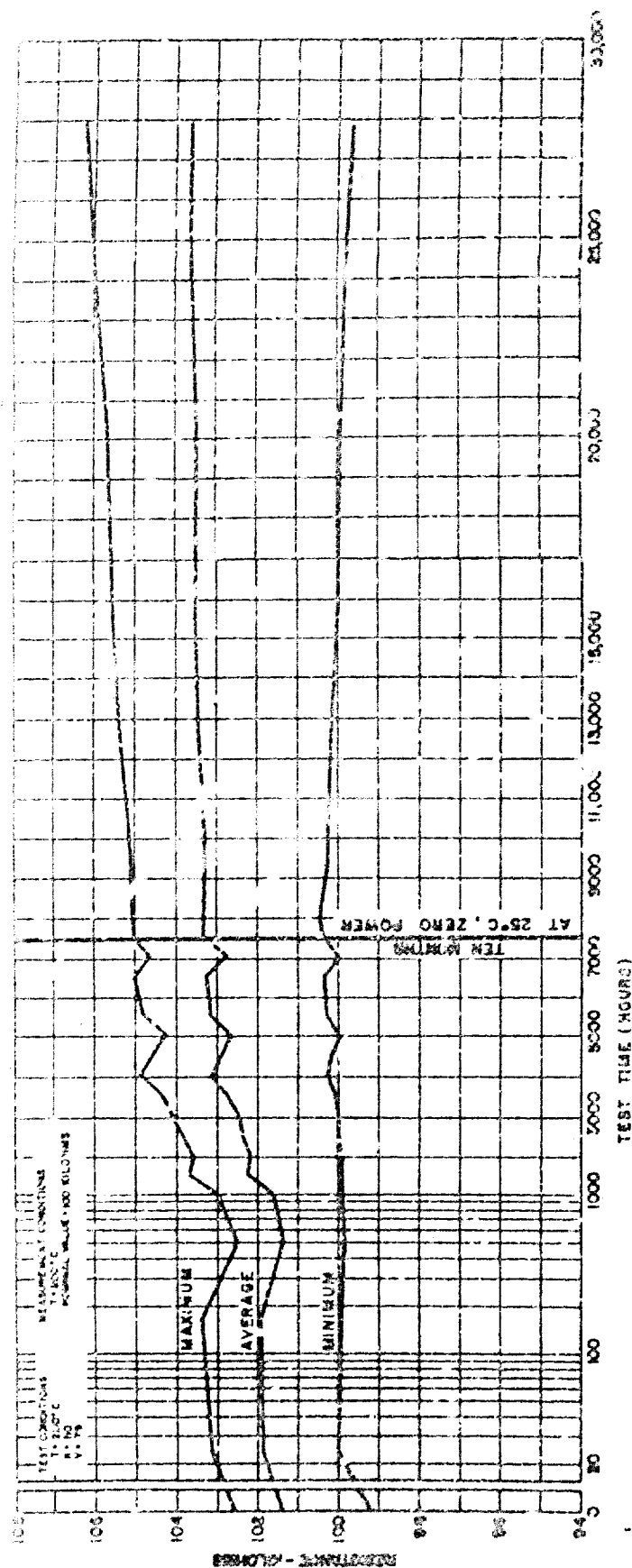
No Failures

Figure 3-10. R2048P1002 - Phase IV - Resistance Variation



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Figure 3-12. R2048P1002 - Ambient Life - Resistance Variation



PHASE 4 RECAPITULATING

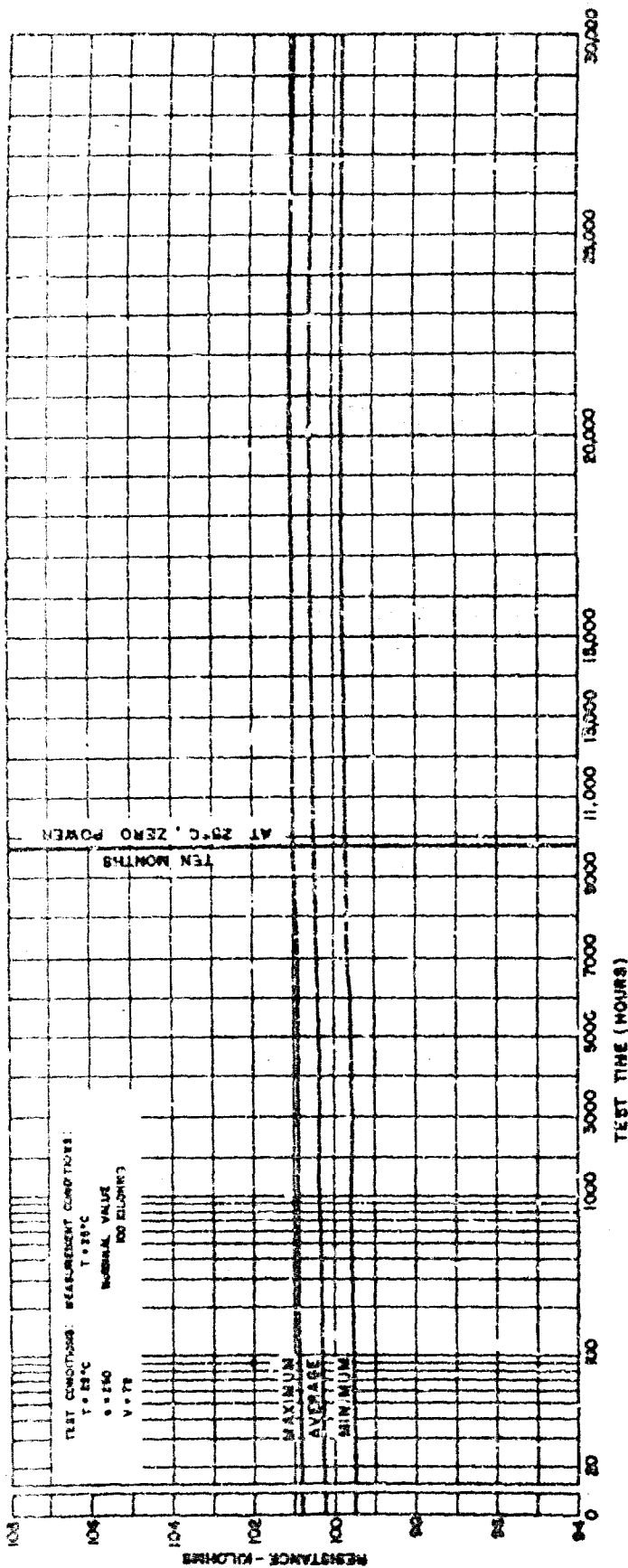
49 PARTS

RESISTANCE VALUES IN K OHMS

TEST NUMBER	AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
1	101.100	0.000	99.100	102.100
2	101.100	0.000	99.100	102.100
3	101.100	0.000	99.100	102.100
4	101.100	0.000	99.100	102.100
5	101.100	0.000	99.100	102.100
6	101.100	0.000	99.100	102.100
7	101.100	0.000	99.100	102.100
8	101.100	0.000	99.100	102.100
9	101.100	0.000	99.100	102.100
10	101.100	0.000	99.100	102.100
11	101.100	0.000	99.100	102.100
12	101.100	0.000	99.100	102.100
13	101.100	0.000	99.100	102.100
14	101.100	0.000	99.100	102.100
15	101.100	0.000	99.100	102.100
16	101.100	0.000	99.100	102.100
17	101.100	0.000	99.100	102.100
18	101.100	0.000	99.100	102.100
19	101.100	0.000	99.100	102.100
20	101.100	0.000	99.100	102.100
21	101.100	0.000	99.100	102.100
22	101.100	0.000	99.100	102.100
23	101.100	0.000	99.100	102.100
24	101.100	0.000	99.100	102.100
25	101.100	0.000	99.100	102.100
26	101.100	0.000	99.100	102.100
27	101.100	0.000	99.100	102.100
28	101.100	0.000	99.100	102.100
29	101.100	0.000	99.100	102.100
30	101.100	0.000	99.100	102.100
31	101.100	0.000	99.100	102.100
32	101.100	0.000	99.100	102.100
33	101.100	0.000	99.100	102.100
34	101.100	0.000	99.100	102.100
35	101.100	0.000	99.100	102.100
36	101.100	0.000	99.100	102.100
37	101.100	0.000	99.100	102.100
38	101.100	0.000	99.100	102.100
39	101.100	0.000	99.100	102.100
40	101.100	0.000	99.100	102.100
41	101.100	0.000	99.100	102.100
42	101.100	0.000	99.100	102.100
43	101.100	0.000	99.100	102.100
44	101.100	0.000	99.100	102.100
45	101.100	0.000	99.100	102.100
46	101.100	0.000	99.100	102.100
47	101.100	0.000	99.100	102.100
48	101.100	0.000	99.100	102.100
49	101.100	0.000	99.100	102.100



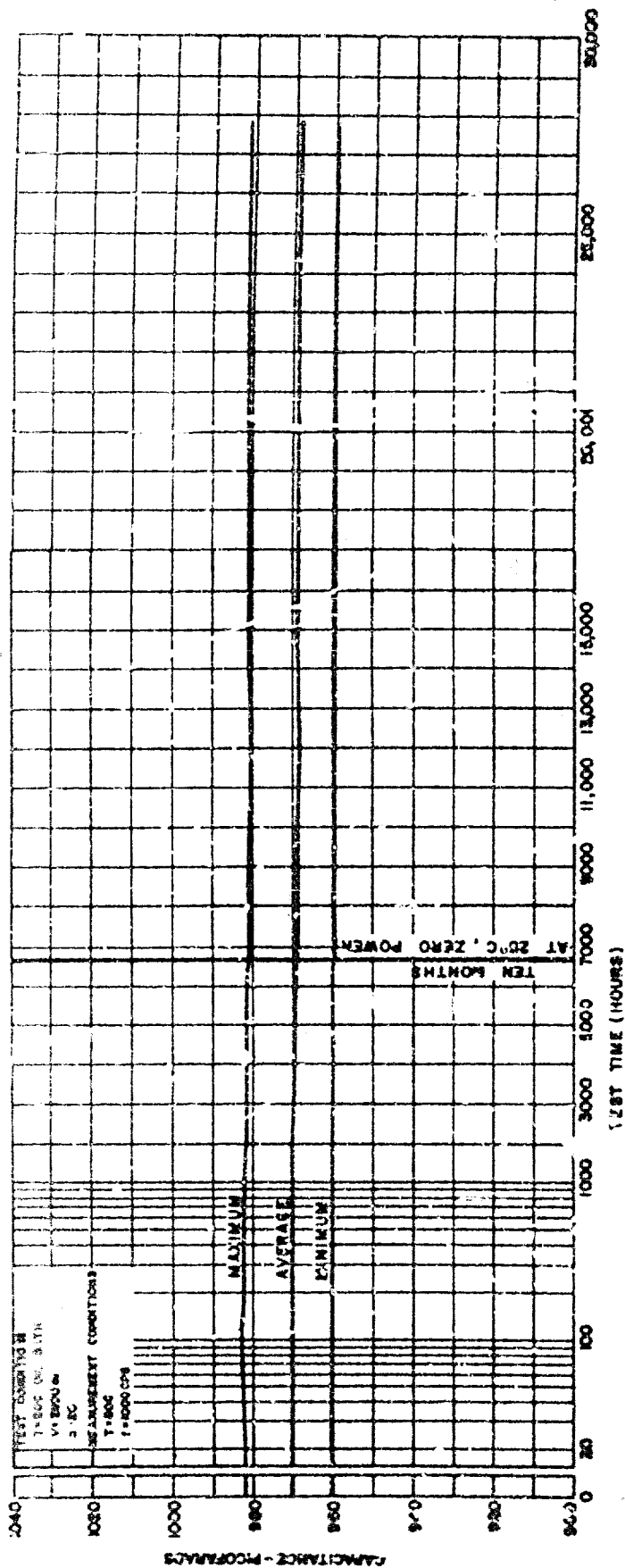




Test Level	Average	Maximum	Minimum
0	100.000	100.000	100.000
1	100.000	100.000	100.000
2	100.000	100.000	100.000
3	100.000	100.000	100.000
4	100.000	100.000	100.000
5	100.000	100.000	100.000
6	100.000	100.000	100.000
7	100.000	100.000	100.000
8	100.000	100.000	100.000
9	100.000	100.000	100.000
10	100.000	100.000	100.000
11	100.000	100.000	100.000
12	100.000	100.000	100.000
13	100.000	100.000	100.000
14	100.000	100.000	100.000
15	100.000	100.000	100.000
16	100.000	100.000	100.000
17	100.000	100.000	100.000
18	100.000	100.000	100.000
19	100.000	100.000	100.000
20	100.000	100.000	100.000
21	100.000	100.000	100.000
22	100.000	100.000	100.000
23	100.000	100.000	100.000
24	100.000	100.000	100.000
25	100.000	100.000	100.000
26	100.000	100.000	100.000
27	100.000	100.000	100.000
28	100.000	100.000	100.000
29	100.000	100.000	100.000
30	100.000	100.000	100.000
31	100.000	100.000	100.000
32	100.000	100.000	100.000
33	100.000	100.000	100.000
34	100.000	100.000	100.000
35	100.000	100.000	100.000
36	100.000	100.000	100.000
37	100.000	100.000	100.000
38	100.000	100.000	100.000
39	100.000	100.000	100.000
40	100.000	100.000	100.000
41	100.000	100.000	100.000
42	100.000	100.000	100.000
43	100.000	100.000	100.000
44	100.000	100.000	100.000
45	100.000	100.000	100.000
46	100.000	100.000	100.000
47	100.000	100.000	100.000
48	100.000	100.000	100.000
49	100.000	100.000	100.000
50	100.000	100.000	100.000
51	100.000	100.000	100.000
52	100.000	100.000	100.000
53	100.000	100.000	100.000
54	100.000	100.000	100.000
55	100.000	100.000	100.000
56	100.000	100.000	100.000
57	100.000	100.000	100.000
58	100.000	100.000	100.000
59	100.000	100.000	100.000
60	100.000	100.000	100.000
61	100.000	100.000	100.000
62	100.000	100.000	100.000
63	100.000	100.000	100.000
64	100.000	100.000	100.000
65	100.000	100.000	100.000
66	100.000	100.000	100.000
67	100.000	100.000	100.000
68	100.000	100.000	100.000
69	100.000	100.000	100.000
70	100.000	100.000	100.000
71	100.000	100.000	100.000
72	100.000	100.000	100.000
73	100.000	100.000	100.000
74	100.000	100.000	100.000
75	100.000	100.000	100.000
76	100.000	100.000	100.000
77	100.000	100.000	100.000
78	100.000	100.000	100.000
79	100.000	100.000	100.000
80	100.000	100.000	100.000
81	100.000	100.000	100.000
82	100.000	100.000	100.000
83	100.000	100.000	100.000
84	100.000	100.000	100.000
85	100.000	100.000	100.000
86	100.000	100.000	100.000
87	100.000	100.000	100.000
88	100.000	100.000	100.000
89	100.000	100.000	100.000
90	100.000	100.000	100.000
91	100.000	100.000	100.000
92	100.000	100.000	100.000
93	100.000	100.000	100.000
94	100.000	100.000	100.000
95	100.000	100.000	100.000
96	100.000	100.000	100.000
97	100.000	100.000	100.000
98	100.000	100.000	100.000
99	100.000	100.000	100.000
100	100.000	100.000	100.000

No Failures

Figure 3-15. R2048P1003 - Ambient Life - Resistance Variation



PH 3 R2045P102

11 PARTS

CAPACITANCE VALUES IN PPM

TEST NUMBER	AVERAGE VALUE	STANDARD DEVIATION	HIGHER VALUE	LOWER VALUE
01	999.999	7.182	999.999	999.999
02	999.999	7.182	999.999	999.999
03	999.999	7.182	999.999	999.999
04	999.999	7.182	999.999	999.999
05	999.999	7.182	999.999	999.999
06	999.999	7.182	999.999	999.999
07	999.999	7.182	999.999	999.999
08	999.999	7.182	999.999	999.999
09	999.999	7.182	999.999	999.999
10	999.999	7.182	999.999	999.999
11	999.999	7.182	999.999	999.999
12	999.999	7.182	999.999	999.999
13	999.999	7.182	999.999	999.999
14	999.999	7.182	999.999	999.999
15	999.999	7.182	999.999	999.999
16	999.999	7.182	999.999	999.999
17	999.999	7.182	999.999	999.999
18	999.999	7.182	999.999	999.999
19	999.999	7.182	999.999	999.999
20	999.999	7.182	999.999	999.999
21	999.999	7.182	999.999	999.999
22	999.999	7.182	999.999	999.999
23	999.999	7.182	999.999	999.999
24	999.999	7.182	999.999	999.999
25	999.999	7.182	999.999	999.999
26	999.999	7.182	999.999	999.999
27	999.999	7.182	999.999	999.999
28	999.999	7.182	999.999	999.999
29	999.999	7.182	999.999	999.999
30	999.999	7.182	999.999	999.999
31	999.999	7.182	999.999	999.999
32	999.999	7.182	999.999	999.999
33	999.999	7.182	999.999	999.999
34	999.999	7.182	999.999	999.999
35	999.999	7.182	999.999	999.999
36	999.999	7.182	999.999	999.999
37	999.999	7.182	999.999	999.999
38	999.999	7.182	999.999	999.999
39	999.999	7.182	999.999	999.999
40	999.999	7.182	999.999	999.999
41	999.999	7.182	999.999	999.999
42	999.999	7.182	999.999	999.999
43	999.999	7.182	999.999	999.999
44	999.999	7.182	999.999	999.999
45	999.999	7.182	999.999	999.999
46	999.999	7.182	999.999	999.999
47	999.999	7.182	999.999	999.999
48	999.999	7.182	999.999	999.999
49	999.999	7.182	999.999	999.999
50	999.999	7.182	999.999	999.999

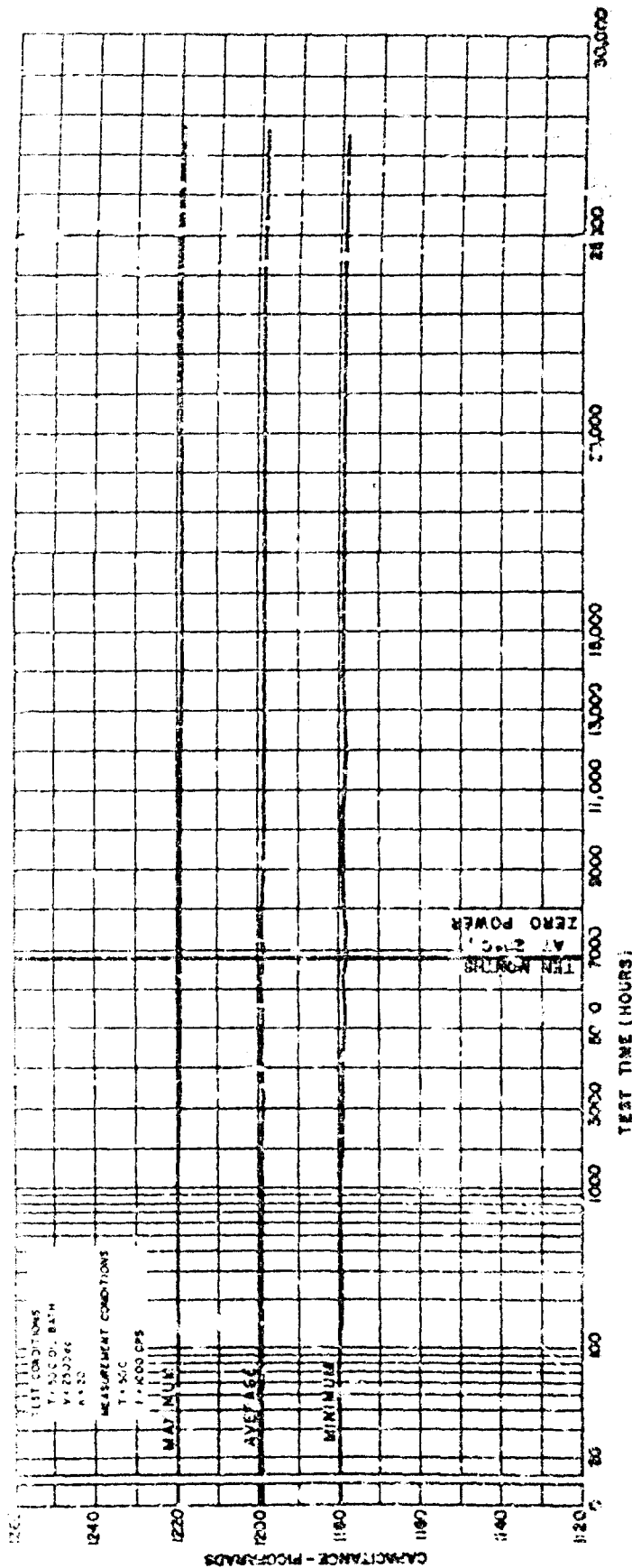
TOTAL FAILURES

TIME TO FAILURE (HRS)

QUANTITY

116	1
999	1
11079	1
21000	1

Figure 3-16. R2045P102 - Phase IV - Capacitance



CAPACITANCE VALUES IN MUF				
11 PARTS				
TEST HOURS	AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
1	1201.134	18.494	1181.639	1219.629
24	1211.240	18.828	1191.418	1231.062
48	1199.048	19.764	1179.282	1217.592
72	1200.148	18.482	1180.662	1219.834
96	1199.900	18.819	1179.860	1217.560
120	1199.858	18.384	1179.484	1217.504
144	1199.498	19.094	1179.022	1217.998
168	1199.142	18.418	1178.738	1217.542
192	1199.710	18.918	1179.008	1217.998
216	1198.278	18.278	1178.008	1217.542
240	1198.278	18.278	1178.008	1217.542
264	1199.012	18.418	1178.592	1217.998
288	1199.842	18.762	1179.082	1217.998
312	1199.338	18.484	1178.858	1217.818
336	1199.608	18.874	1179.082	1219.992
360	1198.828	18.328	1178.182	1219.512
384	1199.458	19.778	1178.012	1217.938
408	1199.318	18.418	1178.008	1217.998
432	1198.818	18.318	1177.998	1217.998
456	1198.818	18.318	1177.998	1217.998
480	1198.818	18.318	1177.998	1217.998
504	1198.818	18.318	1177.998	1217.998
528	1198.818	18.318	1177.998	1217.998
552	1198.818	18.318	1177.998	1217.998
576	1198.818	18.318	1177.998	1217.998
600	1198.818	18.318	1177.998	1217.998
624	1198.818	18.318	1177.998	1217.998
648	1198.818	18.318	1177.998	1217.998
672	1198.818	18.318	1177.998	1217.998
696	1198.818	18.318	1177.998	1217.998
720	1198.818	18.318	1177.998	1217.998
744	1198.818	18.318	1177.998	1217.998
768	1198.818	18.318	1177.998	1217.998
792	1198.818	18.318	1177.998	1217.998
816	1198.818	18.318	1177.998	1217.998
840	1198.818	18.318	1177.998	1217.998
864	1198.818	18.318	1177.998	1217.998
888	1198.818	18.318	1177.998	1217.998
912	1198.818	18.318	1177.998	1217.998
936	1198.818	18.318	1177.998	1217.998
960	1198.818	18.318	1177.998	1217.998
984	1198.818	18.318	1177.998	1217.998
1008	1198.818	18.318	1177.998	1217.998
1032	1198.818	18.318	1177.998	1217.998
1056	1198.818	18.318	1177.998	1217.998
1080	1198.818	18.318	1177.998	1217.998
1104	1198.818	18.318	1177.998	1217.998
1128	1198.818	18.318	1177.998	1217.998
1152	1198.818	18.318	1177.998	1217.998
1176	1198.818	18.318	1177.998	1217.998
1200	1198.818	18.318	1177.998	1217.998

TOTAL FAILURES: 0  
TIME TO FAILURE (HRS): 11042  
QUANTITY: 1

Figure 3-17. R2045P122A, Phase IV - Capacitance



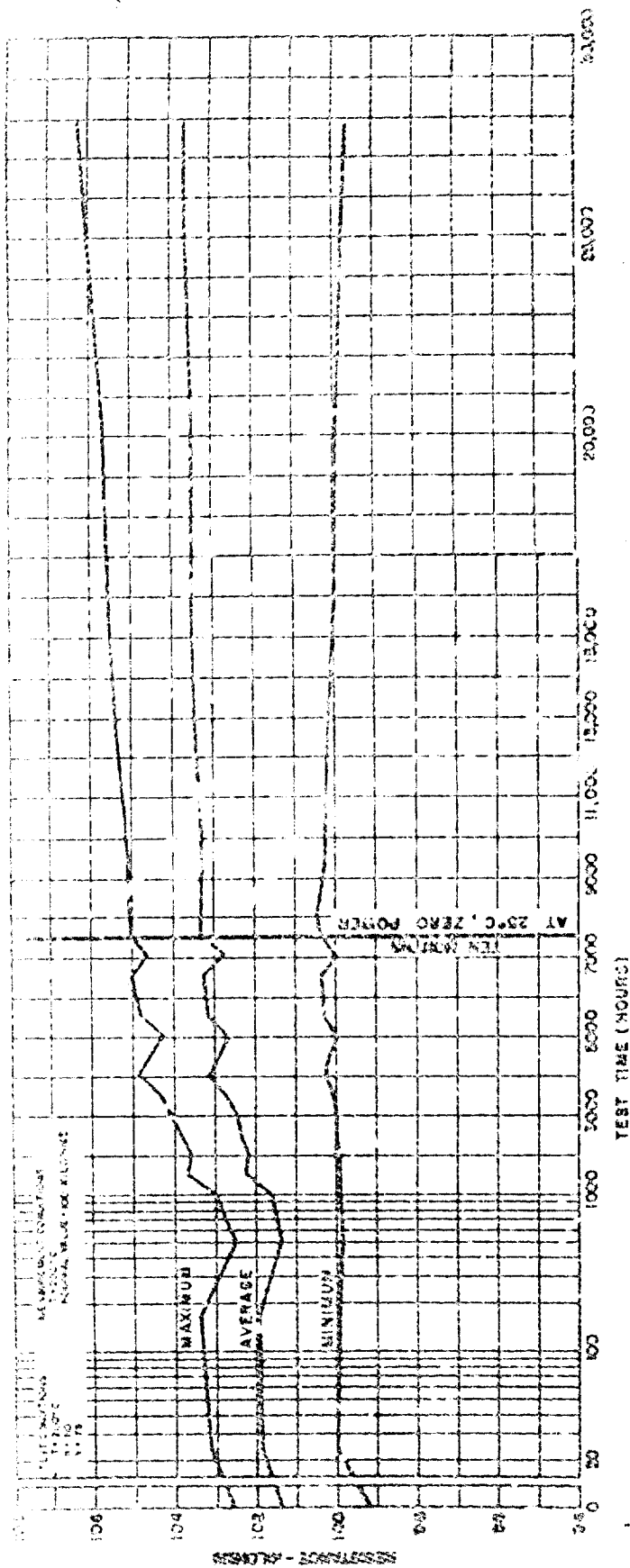


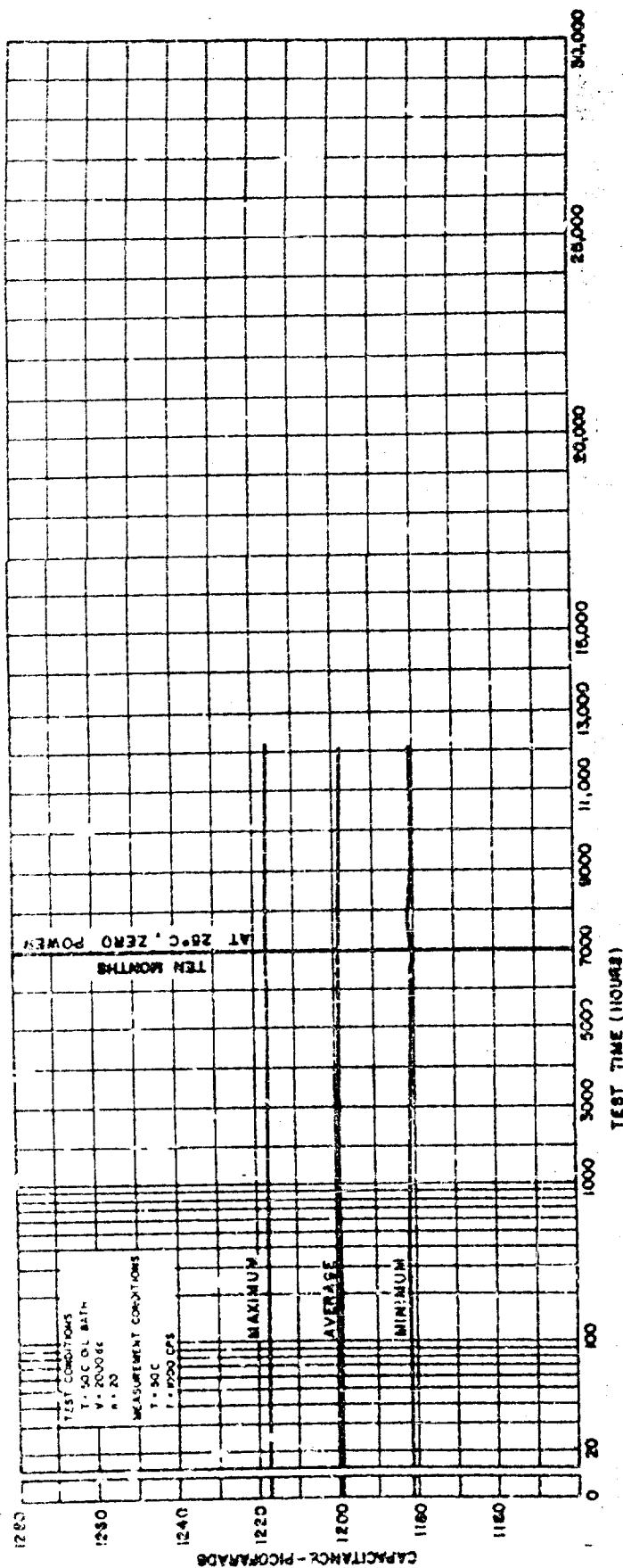
TABLE 4 - SUMMARY OF TEST RESULTS

MEASUREMENT VALUES IN K. DATA

AT 23°C

TEST NUMBER	AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
1	101.305	0.007	99.773	102.816
2	101.440	0.004	100.447	102.434
3	101.739	0.004	100.597	102.876
4	101.232	0.004	100.518	102.524
5	101.660	0.003	100.978	102.313
6	102.261	0.003	101.473	103.046
7	101.150	0.003	100.119	102.176
8	102.356	0.003	101.584	103.128
9	101.777	0.003	100.978	102.591
10	102.032	0.003	101.223	102.841
11	101.115	0.003	100.278	101.916
12	102.003	0.003	101.286	102.720
13	101.693	0.003	100.989	102.398
14	101.534	0.003	100.832	102.234
15	101.714	0.003	100.978	102.454
16	101.772	0.003	100.978	102.591
17	101.403	0.003	100.684	102.120
18	101.113	0.003	100.378	101.848
19	101.132	0.003	100.378	101.848
20	101.078	0.003	100.378	101.848
21	101.403	0.003	100.684	102.120
22	101.403	0.003	100.684	102.120
23	101.403	0.003	100.684	102.120
24	101.403	0.003	100.684	102.120
25	101.403	0.003	100.684	102.120
26	101.403	0.003	100.684	102.120
27	101.403	0.003	100.684	102.120
28	101.403	0.003	100.684	102.120
29	101.403	0.003	100.684	102.120
30	101.403	0.003	100.684	102.120
31	101.403	0.003	100.684	102.120
32	101.403	0.003	100.684	102.120
33	101.403	0.003	100.684	102.120
34	101.403	0.003	100.684	102.120
35	101.403	0.003	100.684	102.120
36	101.403	0.003	100.684	102.120
37	101.403	0.003	100.684	102.120
38	101.403	0.003	100.684	102.120
39	101.403	0.003	100.684	102.120
40	101.403	0.003	100.684	102.120
41	101.403	0.003	100.684	102.120
42	101.403	0.003	100.684	102.120
43	101.403	0.003	100.684	102.120
44	101.403	0.003	100.684	102.120
45	101.403	0.003	100.684	102.120
46	101.403	0.003	100.684	102.120
47	101.403	0.003	100.684	102.120
48	101.403	0.003	100.684	102.120
49	101.403	0.003	100.684	102.120
50	101.403	0.003	100.684	102.120
51	101.403	0.003	100.684	102.120
52	101.403	0.003	100.684	102.120
53	101.403	0.003	100.684	102.120
54	101.403	0.003	100.684	102.120
55	101.403	0.003	100.684	102.120
56	101.403	0.003	100.684	102.120
57	101.403	0.003	100.684	102.120
58	101.403	0.003	100.684	102.120
59	101.403	0.003	100.684	102.120
60	101.403	0.003	100.684	102.120
61	101.403	0.003	100.684	102.120
62	101.403	0.003	100.684	102.120
63	101.403	0.003	100.684	102.120
64	101.403	0.003	100.684	102.120
65	101.403	0.003	100.684	102.120
66	101.403	0.003	100.684	102.120
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68	101.403	0.003	100.684	102.120
69	101.403	0.003	100.684	102.120
70	101.403	0.003	100.684	102.120
71	101.403	0.003	100.684	102.120
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73	101.403	0.003	100.684	102.120
74	101.403	0.003	100.684	102.120
75	101.403	0.003	100.684	102.120
76	101.403	0.003	100.684	102.120
77	101.403	0.003	100.684	102.120
78	101.403	0.003	100.684	102.120
79	101.403	0.003	100.684	102.120
80	101.403	0.003	100.684	102.120
81	101.403	0.003	100.684	102.120
82	101.403	0.003	100.684	102.120
83	101.403	0.003	100.684	102.120
84	101.403	0.003	100.684	102.120
85	101.403	0.003	100.684	102.120
86	101.403	0.003	100.684	102.120
87	101.403	0.003	100.684	102.120
88	101.403	0.003	100.684	102.120
89	101.403	0.003	100.684	102.120
90	101.403	0.003	100.684	102.120
91	101.403	0.003	100.684	102.120
92	101.403	0.003	100.684	102.120
93	101.403	0.003	100.684	102.120
94	101.403	0.003	100.684	102.120
95	101.403	0.003	100.684	102.120
96	101.403	0.003	100.684	102.120
97	101.403	0.003	100.684	102.120
98	101.403	0.003	100.684	102.120
99	101.403	0.003	100.684	102.120
100	101.403	0.003	100.684	102.120

Figure 3-16. 10040P1000 - Phase IV - Resistance Variation



P-2 R2045P122A

10 PARTS

CAPACITANCE VALUES IN PPF

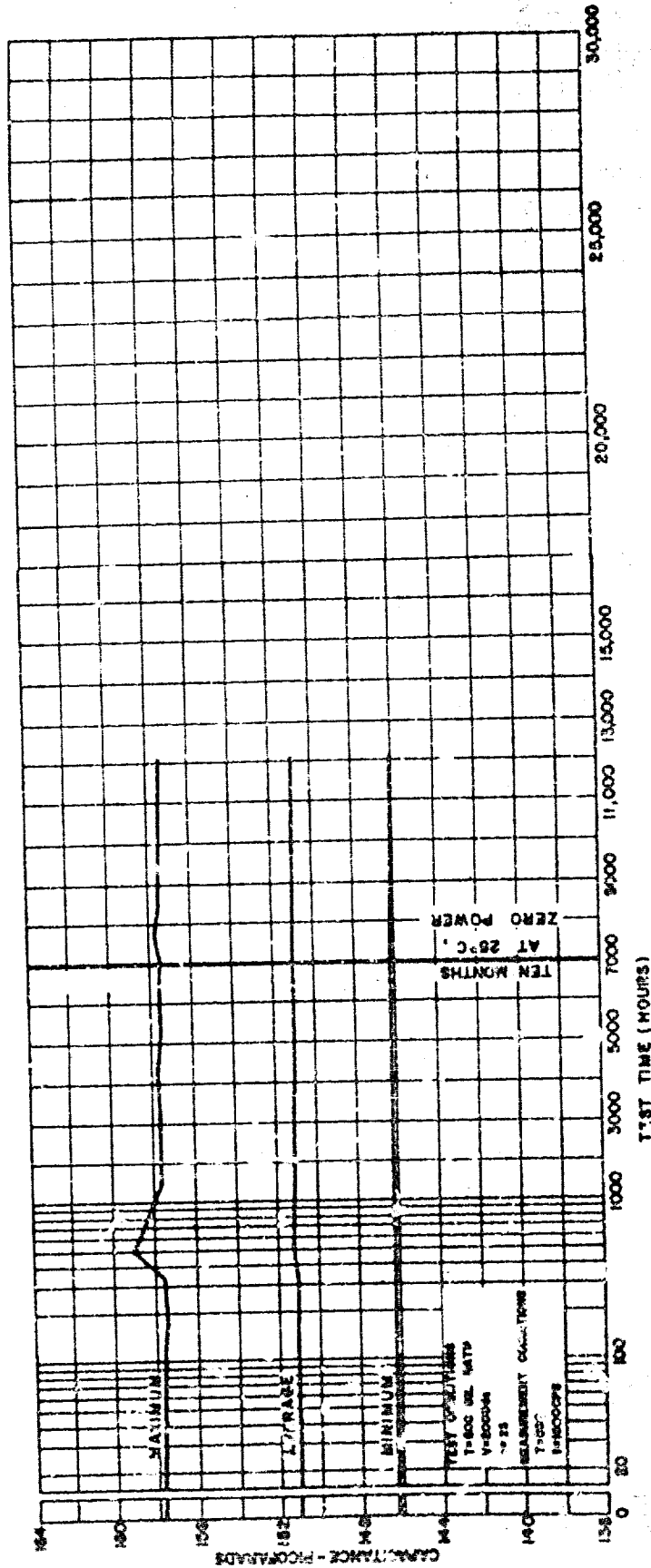
TEST HOUR	AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
1	1199.333	10.110	1189.000	1217.500
25	1199.333	10.110	1189.000	1217.500
125	1199.333	10.110	1189.000	1217.500
150	1199.333	10.110	1189.000	1217.500
175	1199.333	10.110	1189.000	1217.500
200	1199.333	10.110	1189.000	1217.500
225	1199.333	10.110	1189.000	1217.500
250	1199.333	10.110	1189.000	1217.500
275	1199.333	10.110	1189.000	1217.500
300	1199.333	10.110	1189.000	1217.500
325	1199.333	10.110	1189.000	1217.500
350	1199.333	10.110	1189.000	1217.500
375	1199.333	10.110	1189.000	1217.500
400	1199.333	10.110	1189.000	1217.500
425	1199.333	10.110	1189.000	1217.500
450	1199.333	10.110	1189.000	1217.500
475	1199.333	10.110	1189.000	1217.500
500	1199.333	10.110	1189.000	1217.500
525	1199.333	10.110	1189.000	1217.500
550	1199.333	10.110	1189.000	1217.500
575	1199.333	10.110	1189.000	1217.500
600	1199.333	10.110	1189.000	1217.500
625	1199.333	10.110	1189.000	1217.500
650	1199.333	10.110	1189.000	1217.500
675	1199.333	10.110	1189.000	1217.500
700	1199.333	10.110	1189.000	1217.500
725	1199.333	10.110	1189.000	1217.500
750	1199.333	10.110	1189.000	1217.500
775	1199.333	10.110	1189.000	1217.500
800	1199.333	10.110	1189.000	1217.500
825	1199.333	10.110	1189.000	1217.500
850	1199.333	10.110	1189.000	1217.500
875	1199.333	10.110	1189.000	1217.500
900	1199.333	10.110	1189.000	1217.500
925	1199.333	10.110	1189.000	1217.500
950	1199.333	10.110	1189.000	1217.500
975	1199.333	10.110	1189.000	1217.500
1000	1199.333	10.110	1189.000	1217.500

TOTAL FAILURES

TIME TO FAILURE (HRS)

QUANTITY

Figure 3-20. R2045P122A - Phase V - Capacitance



PH 5 R2045P151

CAPACITANCE VALUES (u.MF)

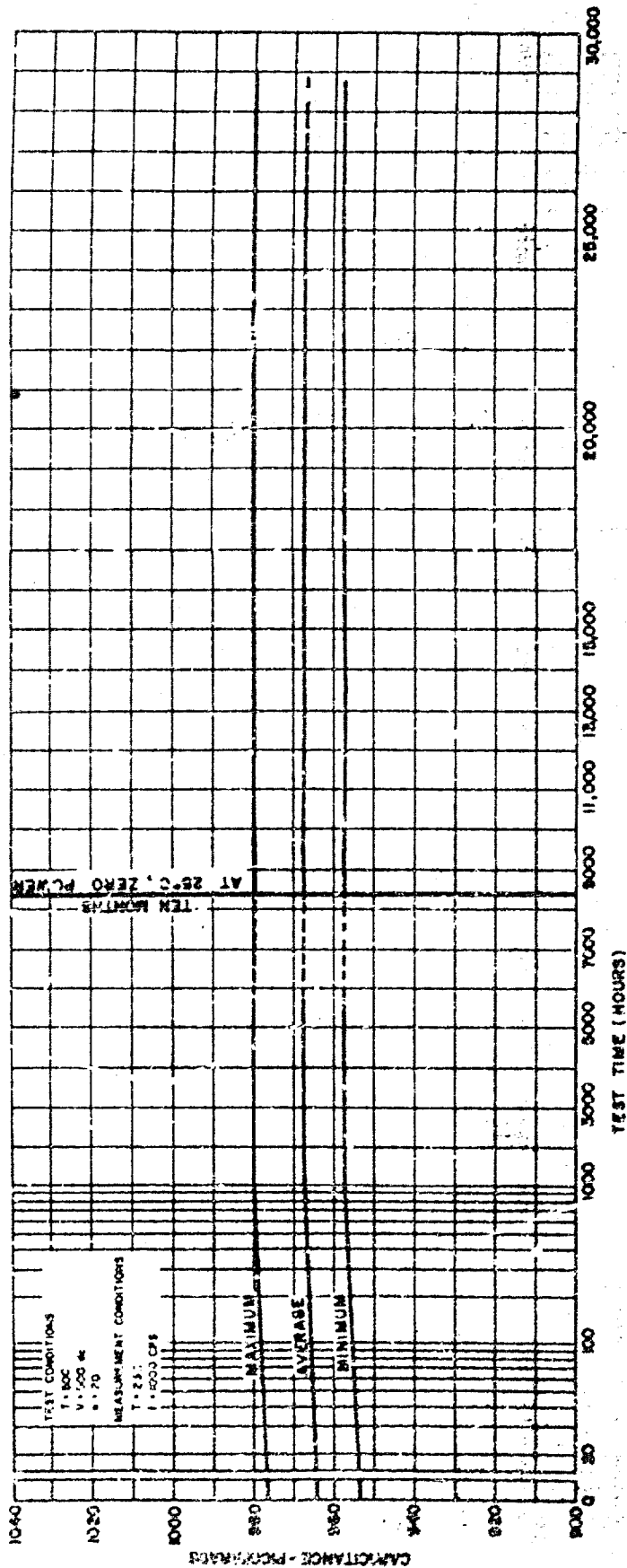
TEST PARTS

TEST PARTS	AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
1	151.072	0.796	149.308	157.408
2	151.045	0.786	149.308	157.408
3	151.039	0.786	149.308	157.408
4	151.034	0.786	149.308	157.408
5	151.049	0.781	149.308	157.408
6	151.044	0.781	149.308	157.408
7	151.042	0.777	149.308	157.408
8	151.036	0.784	149.308	157.408
9	151.034	0.784	149.308	157.408
10	151.034	0.784	149.308	157.408
11	151.034	0.784	149.308	157.408
12	151.034	0.784	149.308	157.408
13	151.034	0.784	149.308	157.408
14	151.034	0.784	149.308	157.408
15	151.034	0.784	149.308	157.408
16	151.034	0.784	149.308	157.408
17	151.034	0.784	149.308	157.408
18	151.034	0.784	149.308	157.408
19	151.034	0.784	149.308	157.408
20	151.034	0.784	149.308	157.408
21	151.034	0.784	149.308	157.408
22	151.034	0.784	149.308	157.408
23	151.034	0.784	149.308	157.408
24	151.034	0.784	149.308	157.408
25	151.034	0.784	149.308	157.408
26	151.034	0.784	149.308	157.408
27	151.034	0.784	149.308	157.408
28	151.034	0.784	149.308	157.408
29	151.034	0.784	149.308	157.408
30	151.034	0.784	149.308	157.408
31	151.034	0.784	149.308	157.408
32	151.034	0.784	149.308	157.408
33	151.034	0.784	149.308	157.408
34	151.034	0.784	149.308	157.408
35	151.034	0.784	149.308	157.408
36	151.034	0.784	149.308	157.408
37	151.034	0.784	149.308	157.408
38	151.034	0.784	149.308	157.408
39	151.034	0.784	149.308	157.408
40	151.034	0.784	149.308	157.408
41	151.034	0.784	149.308	157.408
42	151.034	0.784	149.308	157.408
43	151.034	0.784	149.308	157.408
44	151.034	0.784	149.308	157.408
45	151.034	0.784	149.308	157.408
46	151.034	0.784	149.308	157.408
47	151.034	0.784	149.308	157.408
48	151.034	0.784	149.308	157.408
49	151.034	0.784	149.308	157.408
50	151.034	0.784	149.308	157.408
51	151.034	0.784	149.308	157.408
52	151.034	0.784	149.308	157.408
53	151.034	0.784	149.308	157.408
54	151.034	0.784	149.308	157.408
55	151.034	0.784	149.308	157.408
56	151.034	0.784	149.308	157.408
57	151.034	0.784	149.308	157.408
58	151.034	0.784	149.308	157.408
59	151.034	0.784	149.308	157.408
60	151.034	0.784	149.308	157.408
61	151.034	0.784	149.308	157.408
62	151.034	0.784	149.308	157.408
63	151.034	0.784	149.308	157.408
64	151.034	0.784	149.308	157.408
65	151.034	0.784	149.308	157.408
66	151.034	0.784	149.308	157.408
67	151.034	0.784	149.308	157.408
68	151.034	0.784	149.308	157.408
69	151.034	0.784	149.308	157.408
70	151.034	0.784	149.308	157.408
71	151.034	0.784	149.308	157.408
72	151.034	0.784	149.308	157.408
73	151.034	0.784	149.308	157.408
74	151.034	0.784	149.308	157.408
75	151.034	0.784	149.308	157.408
76	151.034	0.784	149.308	157.408
77	151.034	0.784	149.308	157.408
78	151.034	0.784	149.308	157.408
79	151.034	0.784	149.308	157.408
80	151.034	0.784	149.308	157.408
81	151.034	0.784	149.308	157.408
82	151.034	0.784	149.308	157.408
83	151.034	0.784	149.308	157.408
84	151.034	0.784	149.308	157.408
85	151.034	0.784	149.308	157.408
86	151.034	0.784	149.308	157.408
87	151.034	0.784	149.308	157.408
88	151.034	0.784	149.308	157.408
89	151.034	0.784	149.308	157.408
90	151.034	0.784	149.308	157.408
91	151.034	0.784	149.308	157.408
92	151.034	0.784	149.308	157.408
93	151.034	0.784	149.308	157.408
94	151.034	0.784	149.308	157.408
95	151.034	0.784	149.308	157.408
96	151.034	0.784	149.308	157.408
97	151.034	0.784	149.308	157.408
98	151.034	0.784	149.308	157.408
99	151.034	0.784	149.308	157.408
100	151.034	0.784	149.308	157.408

No Failures

Figure 3-21. R2045P151 - Phase V - Capacitance





PH 6 815-3112

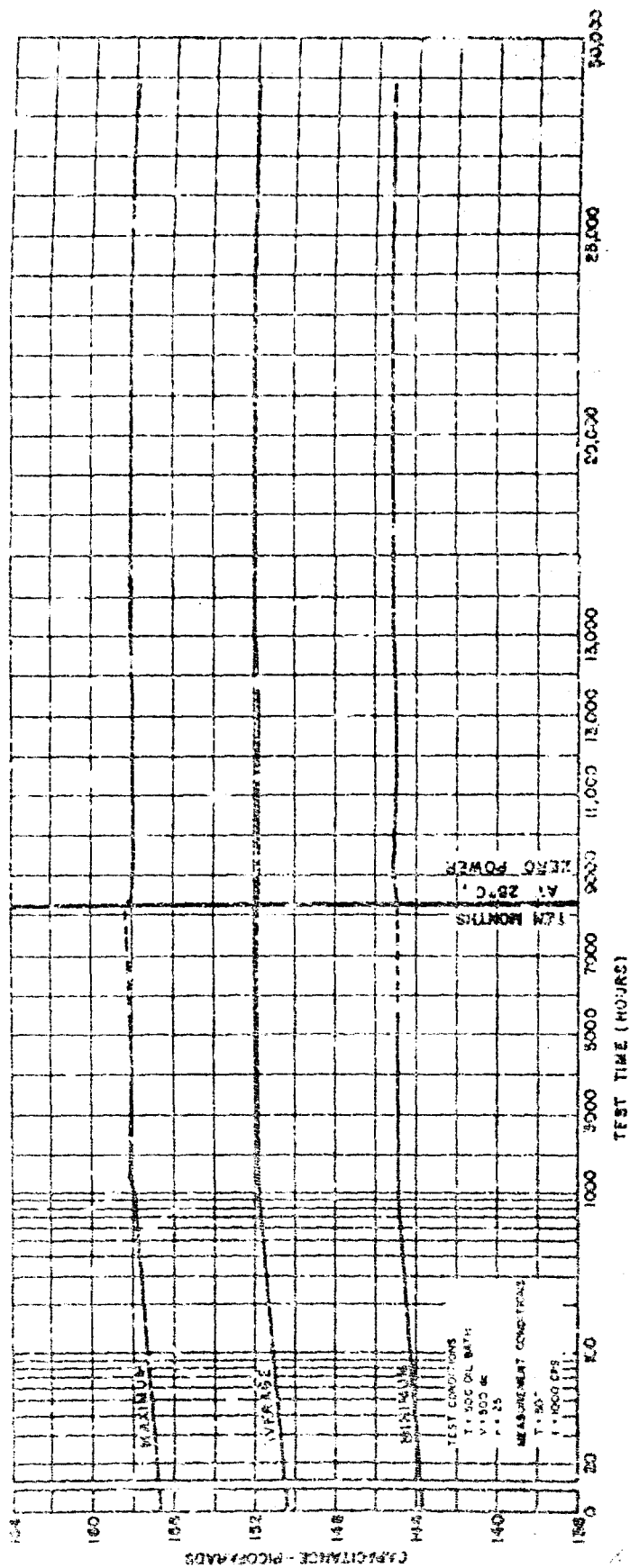
CAPACITANCE VALUES IN MMF

TEST NUMBER	AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
0	927.792	0.409	927.500	928.100
1000	927.798	0.427	927.500	928.100
1000	927.798	0.424	927.500	928.100
2000	927.812	0.421	927.500	928.100
3000	927.798	0.421	927.500	928.100
4000	927.798	0.421	927.500	928.100
5000	927.798	0.421	927.500	928.100
6000	927.798	0.421	927.500	928.100
7000	927.798	0.421	927.500	928.100
8000	927.798	0.421	927.500	928.100
9000	927.798	0.421	927.500	928.100
10000	927.798	0.421	927.500	928.100
11000	927.798	0.421	927.500	928.100
12000	927.798	0.421	927.500	928.100
13000	927.798	0.421	927.500	928.100
14000	927.798	0.421	927.500	928.100
15000	927.798	0.421	927.500	928.100
16000	927.798	0.421	927.500	928.100
17000	927.798	0.421	927.500	928.100
18000	927.798	0.421	927.500	928.100
19000	927.798	0.421	927.500	928.100
20000	927.798	0.421	927.500	928.100
21000	927.798	0.421	927.500	928.100
22000	927.798	0.421	927.500	928.100
23000	927.798	0.421	927.500	928.100
24000	927.798	0.421	927.500	928.100
25000	927.798	0.421	927.500	928.100
26000	927.798	0.421	927.500	928.100
27000	927.798	0.421	927.500	928.100
28000	927.798	0.421	927.500	928.100
29000	927.798	0.421	927.500	928.100
30000	927.798	0.421	927.500	928.100

No Failures

Figure 3-22. R2045P102 - Phase VI - Capacitance





PN 4 P (Imp) 131

CAPACITANCE VALUE IN MUF

TEST HOUR	14 PARTS	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
0	151.729	3.484	149.189	157.969
100	151.729	3.454	149.189	157.969
1000	151.729	3.471	149.189	157.969
10000	151.729	3.441	149.189	157.969
100000	151.729	3.493	149.189	157.969
1000000	151.729	3.473	149.189	157.969
10000000	151.729	3.435	149.189	157.969
100000000	151.729	3.452	149.189	157.969
1000000000	151.729	3.458	149.189	157.969
10000000000	151.729	3.457	149.189	157.969
100000000000	151.729	3.456	149.189	157.969
1000000000000	151.729	3.453	149.189	157.969
10000000000000	151.729	3.452	149.189	157.969
100000000000000	151.729	3.458	149.189	157.969

No Failures

Figure 3-24. R2045P151 - Phase VI - Capacitance



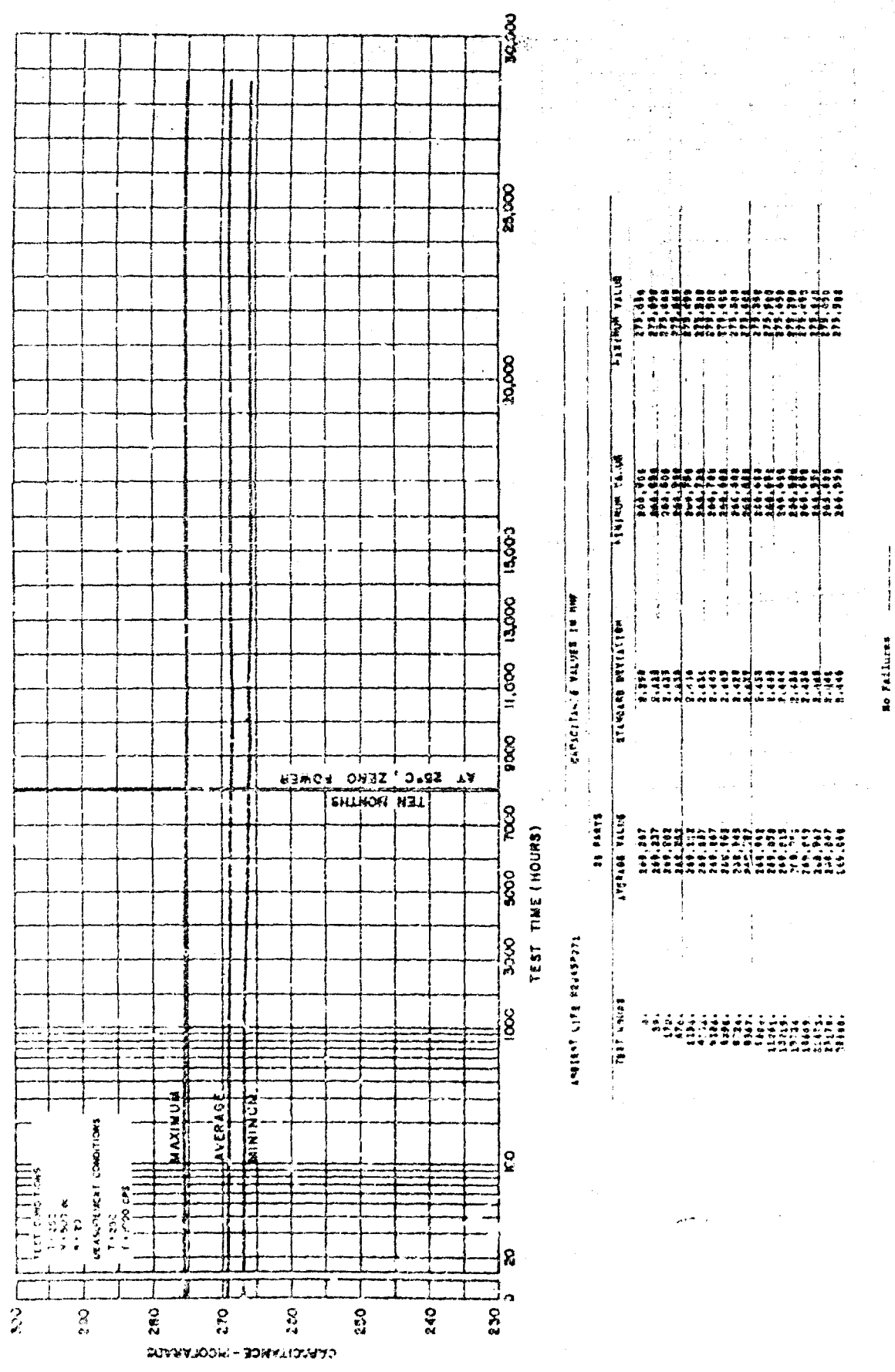


Figure 3-26. R2045P271 - Ambient Life - Capacitance

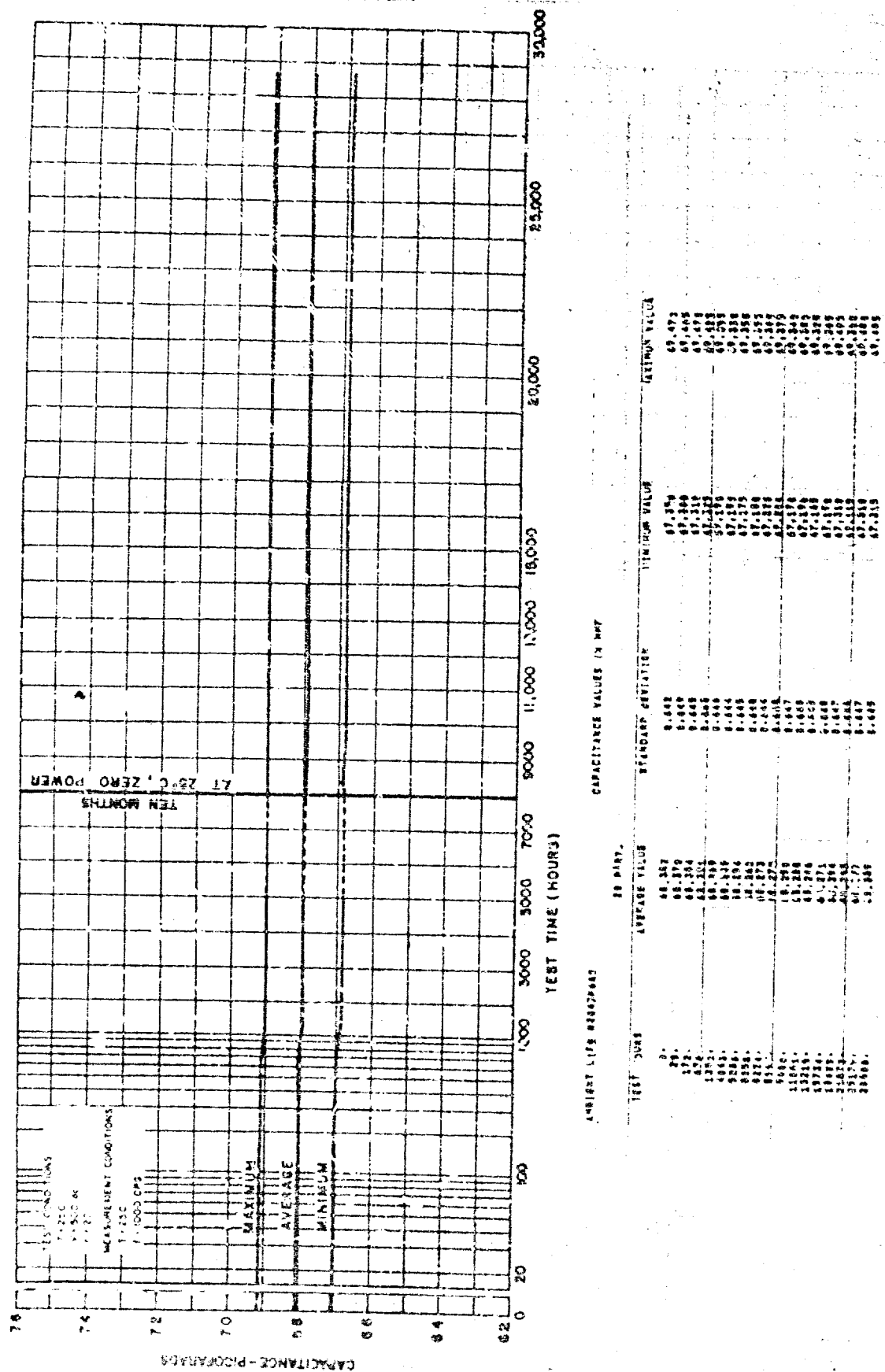
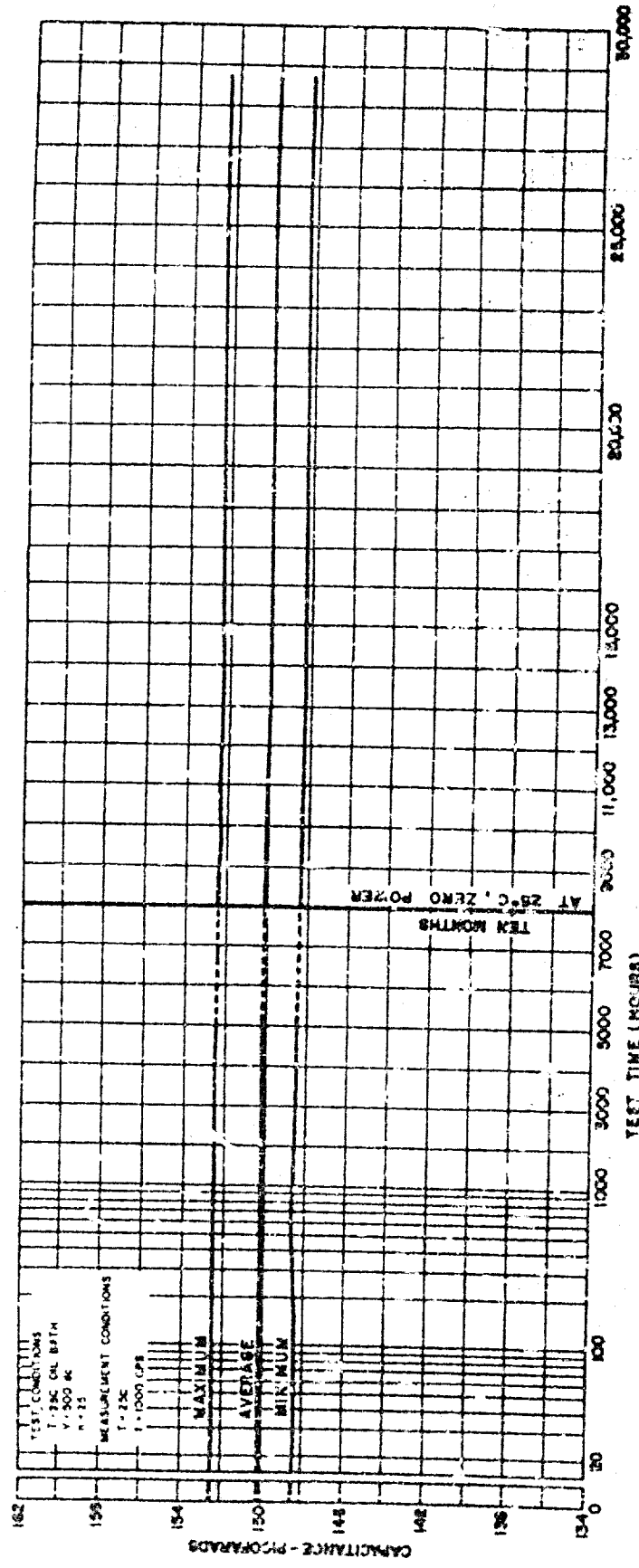


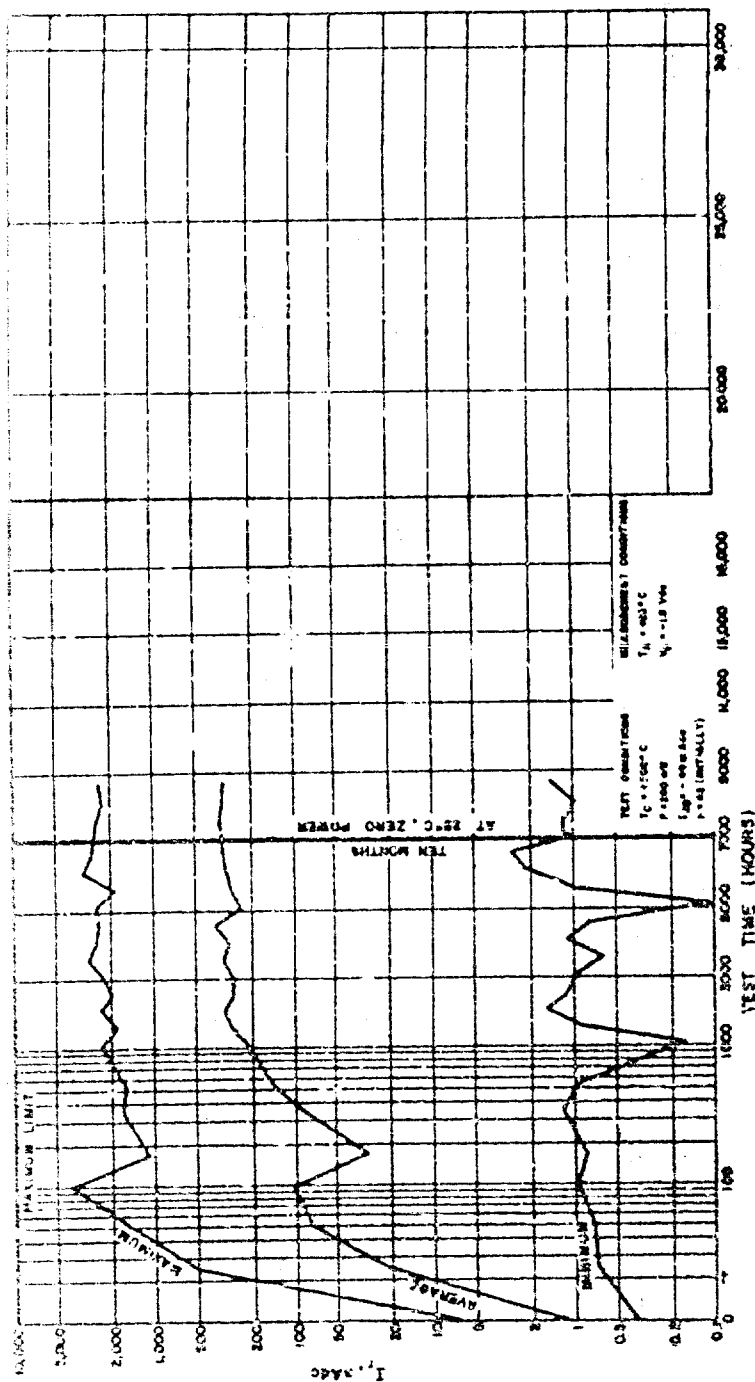
Figure 3-27. R2045P680 - Ambient Life - Capacitance





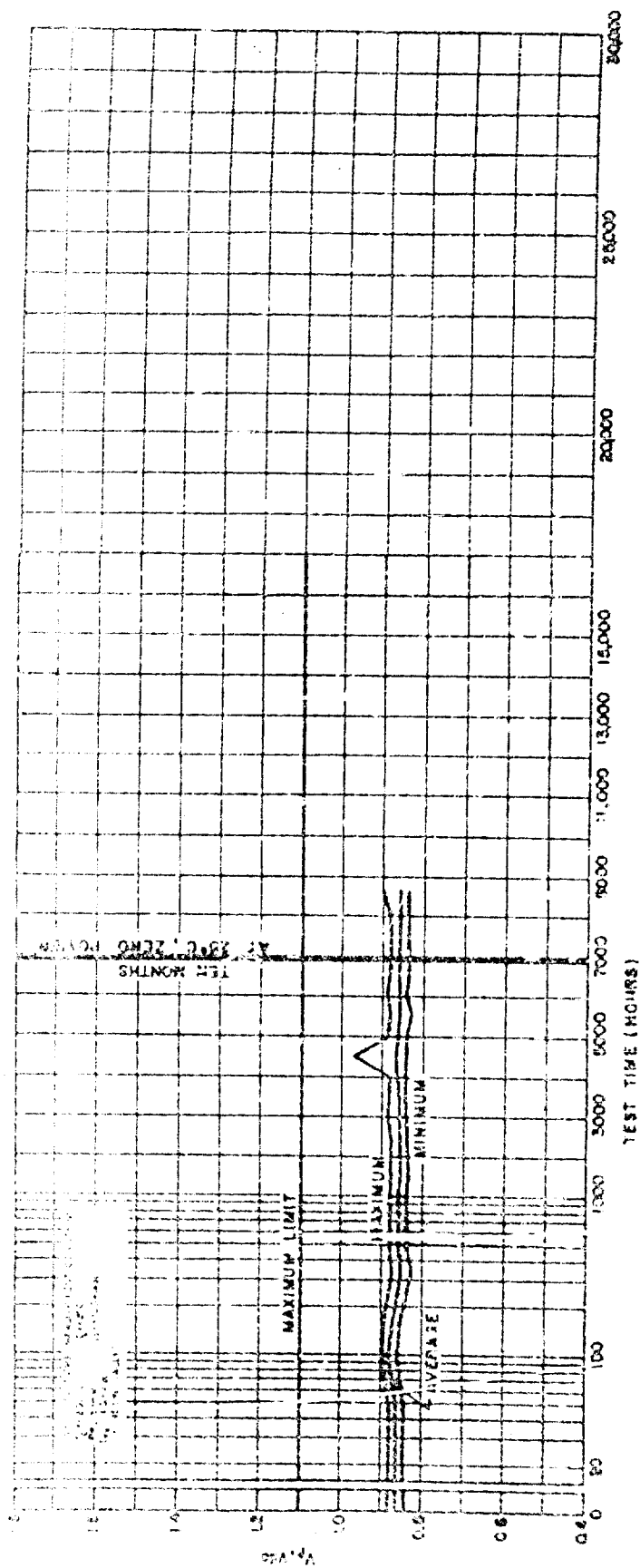
CAPACITANCE VALUES IN INCH	
20 PARTS	
TEST GROUPS	TEST TIME (HOURS)
1	100
2	200
3	300
4	400
5	500
6	600
7	700
8	800
9	900
10	1000
11	1200
12	1400
13	1600
14	1800
15	2000
16	2500
17	3000
18	3500
19	4000
20	4500
21	5000
22	5500
23	6000
24	6500
25	7000
26	7500
27	8000
28	8500
29	9000
30	9500
31	10000
32	11000
33	12000
34	13000
35	14000
36	15000
37	16000
38	17000
39	18000
40	19000
41	20000
42	21000
43	22000
44	23000
45	24000
46	25000
47	26000
48	27000
49	28000
50	29000
51	30000
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95	74000
96	75000
97	76000
98	77000
99	78000
100	79000
101	80000
102	81000
103	82000
104	83000
105	84000
106	85000
107	86000
108	87000
109	88000
110	89000
111	90000
112	91000
113	92000
114	93000
115	94000
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135	114000
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140	119000
141	120000
142	121000
143	122000
144	123000
145	124000
146	125000
147	126000
148	127000
149	128000
150	129000
151	130000
152	131000
153	132000
154	133000
155	134000
156	135000
157	136000
158	137000
159	138000
160	139000
161	140000
162	141000
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164	143000
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166	145000
167	146000
168	147000
169	148000
170	149000
171	150000
172	151000
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195	174000
196	175000
197	176000
198	177000
199	178000
200	179000
201	180000
202	181000
203	182000
204	183000
205	184000
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232	211000
233	212000
234	213000
235	214000
236	215000
237	216000
238	217000
239	218000
240	219000
241	220000
242	221000
243	222000
244	223000
245	224000
246	225000
247	226000
248	227000
249	228000
250	229000
251	230000
252	231000
253	232000
254	233000
255	234000
256	235000
257	236000
258	237000
259	238000
260	239000
261	240000
262	241000
263	242000
264	243000
265	244000
266	245000
267	246000
268	247000
269	248000
270	249000
271	250000
272	251000
273	252000
274	253000
275	254000
276	255000
277	256000
278	257000
279	258000
280	259000
281	260000
282	261000
283	262000
284	263000
285	264000
286	265000
287	266000
288	267000
289	268000
290	269000
291	270000
292	271000
293	272000
294	273000
295	274000
296	275000
297	276000
298	277000
299	278000
300	279000
301	280000
302	281000
303	282000
304	283000
305	284000
306	285000
307	286000
308	287000
309	288000
310	289000
311	290000
312	291000
313	292000
314	293000
315	294000
316	295000
317	296000
318	297000
319	298000
320	299000
321	300000
322	301000
323	302000
324	303000
325	304000
326	305000
327	306000
328	307000
329	308000
330	309000
331	310000
332	311000
333	312000
334	313000
335	314000
336	315000
337	316000
338	317000
339	318000
340	319000
341	320000
342	321000
343	322000
344	323000
345	324000
346	325000
347	326000
348	327000
349	328000
350	329000
351	330000
352	331000
353	332000
354	333000
355	334000
356	335000
357	336000
358	337000
359	338000
360	339000
361	340000
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377	356000
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385	364000
386	365000
387	366000
388	367000
389	368000
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397	376000
398	377000
399	378000
400	379000
401	380000
402	381000
403	382000
404	383000
405	384000
406	385000
407	386000
408	387000
409	388000
410	389000
411	390000
412	391000
413	392000
414	393000
415	394000
416	395000
417	396000
418	397000
419	398000
420	399000
421	400000
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425	404000
426	405000
427	406000
428	407000
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430	409000
431	410000
432	411000
433	412000
434	413000
435	414000
436	415000
437	416000
438	417000
439	418000
440	419000
441	420000
442	421000
443	422000
444	423000
445	424000
446	425000
447	426000
448	427000
449	428000
450	429000
451	430000
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453	432000
454	433000
455	434000
456	435000
457	436000
458	437000
459	438000
460	439000
461	440000
462	441000
463	442000
464	443000
465	444000
466	445000
467	446000
468	447000
469	448000
470	449000
471	450000
472	451000
473	452000
474	453000
475	454000
476	455000
477	456000
478	457000
479	458000
480	459000
481	460000
482	461000
483	462000
484	463000
485	464000
486	465000
487	466000
488	467000
489	468000
490	469000
491	470000





TEST HOURS	20 PARTS (FAILURES NOT INCLUDED)	STORAGE INITIATION	MINIMUM VALUE	MAXIMUM VALUE	QUANTITY
1	1.000	1.000	1.000	1.000	1.000
2	1.000	1.000	1.000	1.000	1.000
3	1.000	1.000	1.000	1.000	1.000
4	1.000	1.000	1.000	1.000	1.000
5	1.000	1.000	1.000	1.000	1.000
6	1.000	1.000	1.000	1.000	1.000
7	1.000	1.000	1.000	1.000	1.000
8	1.000	1.000	1.000	1.000	1.000
9	1.000	1.000	1.000	1.000	1.000
10	1.000	1.000	1.000	1.000	1.000
11	1.000	1.000	1.000	1.000	1.000
12	1.000	1.000	1.000	1.000	1.000
13	1.000	1.000	1.000	1.000	1.000
14	1.000	1.000	1.000	1.000	1.000
15	1.000	1.000	1.000	1.000	1.000
16	1.000	1.000	1.000	1.000	1.000
17	1.000	1.000	1.000	1.000	1.000
18	1.000	1.000	1.000	1.000	1.000
19	1.000	1.000	1.000	1.000	1.000
20	1.000	1.000	1.000	1.000	1.000
21	1.000	1.000	1.000	1.000	1.000
22	1.000	1.000	1.000	1.000	1.000
23	1.000	1.000	1.000	1.000	1.000
24	1.000	1.000	1.000	1.000	1.000
25	1.000	1.000	1.000	1.000	1.000
26	1.000	1.000	1.000	1.000	1.000
27	1.000	1.000	1.000	1.000	1.000
28	1.000	1.000	1.000	1.000	1.000
29	1.000	1.000	1.000	1.000	1.000
30	1.000	1.000	1.000	1.000	1.000
31	1.000	1.000	1.000	1.000	1.000
32	1.000	1.000	1.000	1.000	1.000
33	1.000	1.000	1.000	1.000	1.000
34	1.000	1.000	1.000	1.000	1.000
35	1.000	1.000	1.000	1.000	1.000
36	1.000	1.000	1.000	1.000	1.000
37	1.000	1.000	1.000	1.000	1.000
38	1.000	1.000	1.000	1.000	1.000
39	1.000	1.000	1.000	1.000	1.000
40	1.000	1.000	1.000	1.000	1.000
41	1.000	1.000	1.000	1.000	1.000
42	1.000	1.000	1.000	1.000	1.000
43	1.000	1.000	1.000	1.000	1.000
44	1.000	1.000	1.000	1.000	1.000
45	1.000	1.000	1.000	1.000	1.000
46	1.000	1.000	1.000	1.000	1.000
47	1.000	1.000	1.000	1.000	1.000
48	1.000	1.000	1.000	1.000	1.000
49	1.000	1.000	1.000	1.000	1.000
50	1.000	1.000	1.000	1.000	1.000
51	1.000	1.000	1.000	1.000	1.000
52	1.000	1.000	1.000	1.000	1.000
53	1.000	1.000	1.000	1.000	1.000
54	1.000	1.000	1.000	1.000	1.000
55	1.000	1.000	1.000	1.000	1.000
56	1.000	1.000	1.000	1.000	1.000
57	1.000	1.000	1.000	1.000	1.000
58	1.000	1.000	1.000	1.000	1.000
59	1.000	1.000	1.000	1.000	1.000
60	1.000	1.000	1.000	1.000	1.000
61	1.000	1.000	1.000	1.000	1.000
62	1.000	1.000	1.000	1.000	1.000
63	1.000	1.000	1.000	1.000	1.000
64	1.000	1.000	1.000	1.000	1.000
65	1.000	1.000	1.000	1.000	1.000
66	1.000	1.000	1.000	1.000	1.000
67	1.000	1.000	1.000	1.000	1.000
68	1.000	1.000	1.000	1.000	1.000
69	1.000	1.000	1.000	1.000	1.000
70	1.000	1.000	1.000	1.000	1.000
71	1.000	1.000	1.000	1.000	1.000
72	1.000	1.000	1.000	1.000	1.000
73	1.000	1.000	1.000	1.000	1.000
74	1.000	1.000	1.000	1.000	1.000
75	1.000	1.000	1.000	1.000	1.000
76	1.000	1.000	1.000	1.000	1.000
77	1.000	1.000	1.000	1.000	1.000
78	1.000	1.000	1.000	1.000	1.000
79	1.000	1.000	1.000	1.000	1.000
80	1.000	1.000	1.000	1.000	1.000
81	1.000	1.000	1.000	1.000	1.000
82	1.000	1.000	1.000	1.000	1.000
83	1.000	1.000	1.000	1.000	1.000
84	1.000	1.000	1.000	1.000	1.000
85	1.000	1.000	1.000	1.000	1.000
86	1.000	1.000	1.000	1.000	1.000
87	1.000	1.000	1.000	1.000	1.000
88	1.000	1.000	1.000	1.000	1.000
89	1.000	1.000	1.000	1.000	1.000
90	1.000	1.000	1.000	1.000	1.000
91	1.000	1.000	1.000	1.000	1.000
92	1.000	1.000	1.000	1.000	1.000
93	1.000	1.000	1.000	1.000	1.000
94	1.000	1.000	1.000	1.000	1.000
95	1.000	1.000	1.000	1.000	1.000
96	1.000	1.000	1.000	1.000	1.000
97	1.000	1.000	1.000	1.000	1.000
98	1.000	1.000	1.000	1.000	1.000
99	1.000	1.000	1.000	1.000	1.000
100	1.000	1.000	1.000	1.000	1.000

Figure 3-30. R2008P5, Phase IV, I<sub>T</sub>



VF VALUES IN VOLTS

31 PARTS (FAILURES NOT INCLUDED)

TEST HOURS	AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	QUANTITY
1	0.182	0.009	0.144	0.222	1
2	0.181	0.009	0.143	0.222	1
3	0.182	0.010	0.143	0.222	1
4	0.182	0.010	0.143	0.222	1
5	0.182	0.010	0.143	0.222	1
6	0.182	0.010	0.143	0.222	1
7	0.182	0.010	0.143	0.222	1
8	0.182	0.010	0.143	0.222	1
9	0.182	0.010	0.143	0.222	1
10	0.182	0.010	0.143	0.222	1
11	0.182	0.010	0.143	0.222	1
12	0.182	0.010	0.143	0.222	1
13	0.182	0.010	0.143	0.222	1
14	0.182	0.010	0.143	0.222	1
15	0.182	0.010	0.143	0.222	1
16	0.182	0.010	0.143	0.222	1
17	0.182	0.010	0.143	0.222	1
18	0.182	0.010	0.143	0.222	1
19	0.182	0.010	0.143	0.222	1
20	0.182	0.010	0.143	0.222	1
21	0.182	0.010	0.143	0.222	1
22	0.182	0.010	0.143	0.222	1
23	0.182	0.010	0.143	0.222	1
24	0.182	0.010	0.143	0.222	1
25	0.182	0.010	0.143	0.222	1
26	0.182	0.010	0.143	0.222	1
27	0.182	0.010	0.143	0.222	1
28	0.182	0.010	0.143	0.222	1
29	0.182	0.010	0.143	0.222	1
30	0.182	0.010	0.143	0.222	1

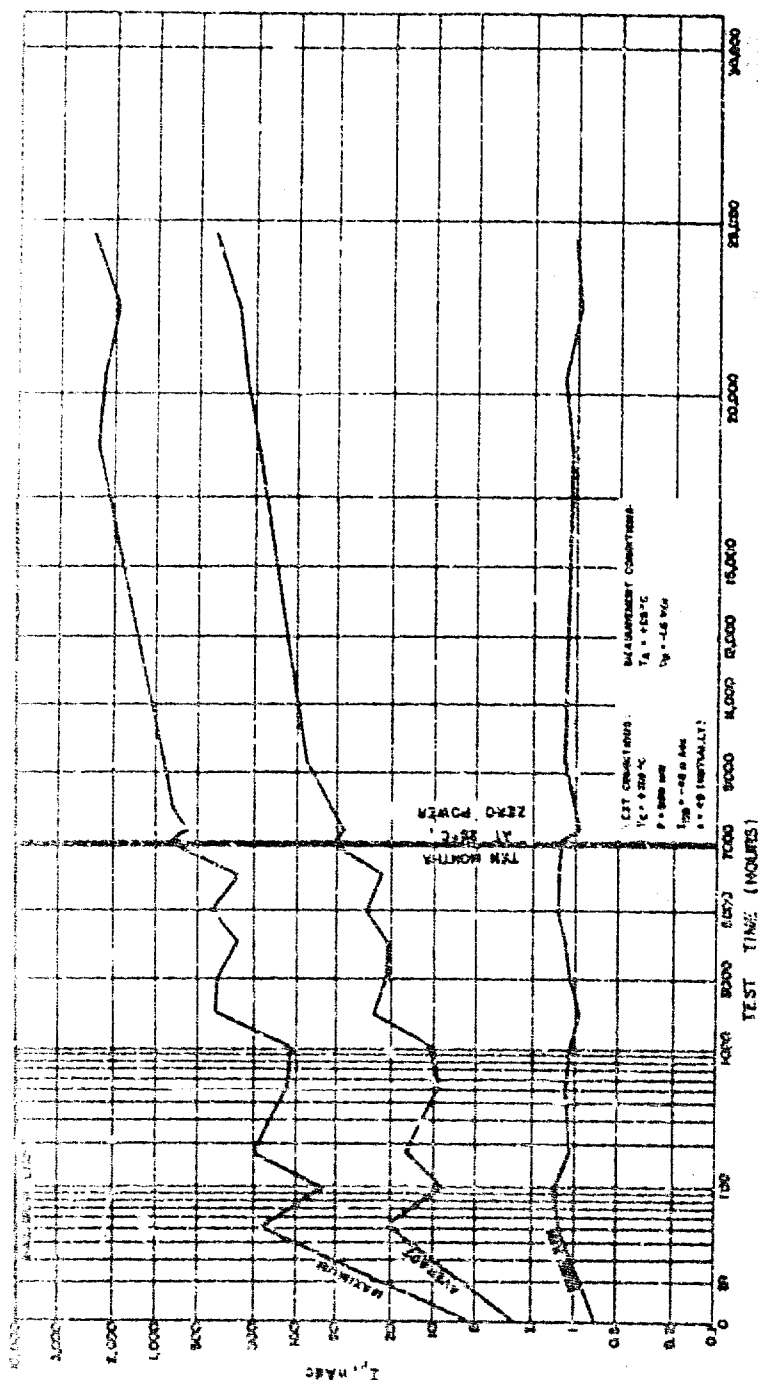
TOTAL FAILURES

TIME TO FAILURE (HRS)

24  
1000  
4554  
1437

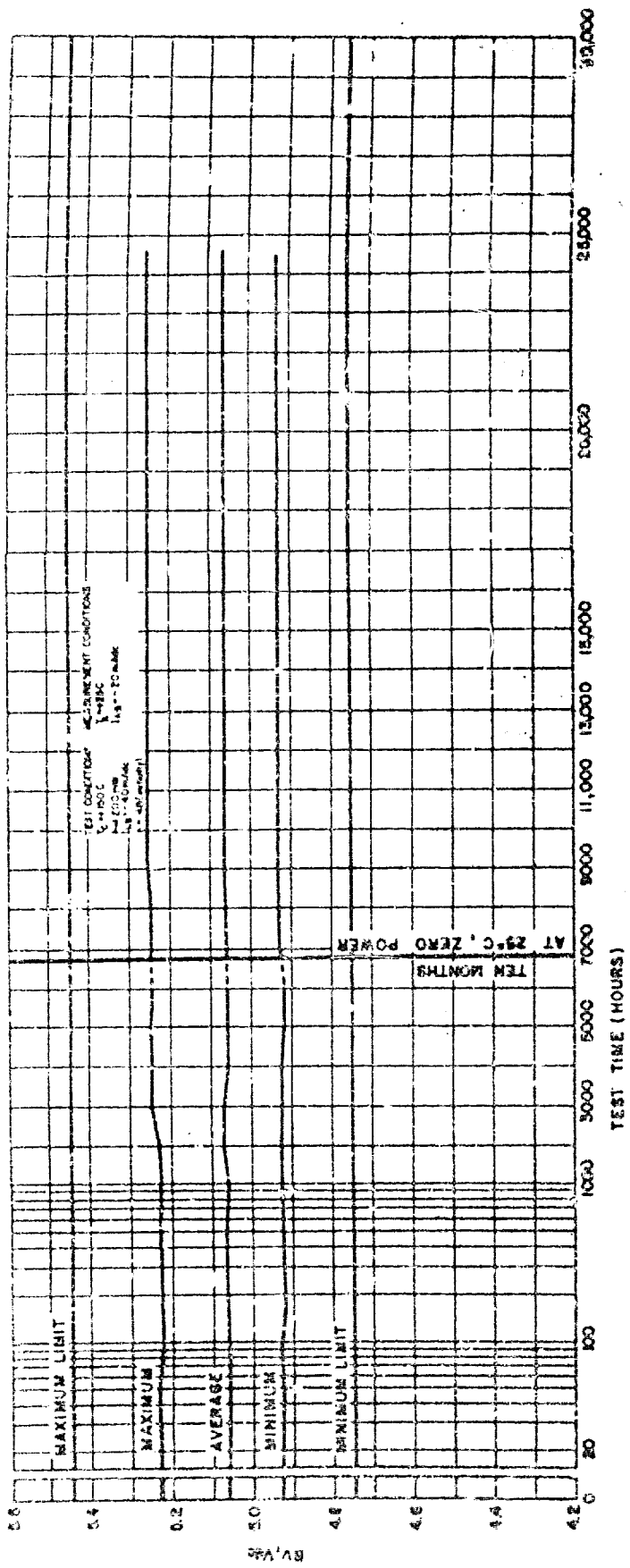
Figure 3-31. R2098P5, Phase IV, V<sub>F</sub>





TEST NUMBER	TEST TIME (HOURS)	TEST RESULTS	TEST TIME (HOURS)	TEST RESULTS	TEST TIME (HOURS)	TEST RESULTS
1	100	1.00	10000	100.00	19900	199.00
2	200	2.00	10100	101.00	20000	200.00
3	300	3.00	10200	102.00	20100	201.00
4	400	4.00	10300	103.00	20200	202.00
5	500	5.00	10400	104.00	20300	203.00
6	600	6.00	10500	105.00	20400	204.00
7	700	7.00	10600	106.00	20500	205.00
8	800	8.00	10700	107.00	20600	206.00
9	900	9.00	10800	108.00	20700	207.00
10	1000	10.00	10900	109.00	20800	208.00
11	1100	11.00	11000	110.00	20900	209.00
12	1200	12.00	11100	111.00	21000	210.00
13	1300	13.00	11200	112.00	21100	211.00
14	1400	14.00	11300	113.00	21200	212.00
15	1500	15.00	11400	114.00	21300	213.00
16	1600	16.00	11500	115.00	21400	214.00
17	1700	17.00	11600	116.00	21500	215.00
18	1800	18.00	11700	117.00	21600	216.00
19	1900	19.00	11800	118.00	21700	217.00
20	2000	20.00	11900	119.00	21800	218.00
21	2100	21.00	12000	120.00	21900	219.00
22	2200	22.00	12100	121.00	22000	220.00
23	2300	23.00	12200	122.00	22100	221.00
24	2400	24.00	12300	123.00	22200	222.00
25	2500	25.00	12400	124.00	22300	223.00
26	2600	26.00	12500	125.00	22400	224.00
27	2700	27.00	12600	126.00	22500	225.00
28	2800	28.00	12700	127.00	22600	226.00
29	2900	29.00	12800	128.00	22700	227.00
30	3000	30.00	12900	129.00	22800	228.00
31	3100	31.00	13000	130.00	22900	229.00
32	3200	32.00	13100	131.00	23000	230.00
33	3300	33.00	13200	132.00	23100	231.00
34	3400	34.00	13300	133.00	23200	232.00
35	3500	35.00	13400	134.00	23300	233.00
36	3600	36.00	13500	135.00	23400	234.00
37	3700	37.00	13600	136.00	23500	235.00
38	3800	38.00	13700	137.00	23600	236.00
39	3900	39.00	13800	138.00	23700	237.00
40	4000	40.00	13900	139.00	23800	238.00
41	4100	41.00	14000	140.00	23900	239.00
42	4200	42.00	14100	141.00	24000	240.00
43	4300	43.00	14200	142.00	24100	241.00
44	4400	44.00	14300	143.00	24200	242.00
45	4500	45.00	14400	144.00	24300	243.00
46	4600	46.00	14500	145.00	24400	244.00
47	4700	47.00	14600	146.00	24500	245.00
48	4800	48.00	14700	147.00	24600	246.00
49	4900	49.00	14800	148.00	24700	247.00
50	5000	50.00	14900	149.00	24800	248.00
51	5100	51.00	15000	150.00	24900	249.00
52	5200	52.00	15100	151.00	25000	250.00
53	5300	53.00	15200	152.00	25100	251.00
54	5400	54.00	15300	153.00	25200	252.00
55	5500	55.00	15400	154.00	25300	253.00
56	5600	56.00	15500	155.00	25400	254.00
57	5700	57.00	15600	156.00	25500	255.00
58	5800	58.00	15700	157.00	25600	256.00
59	5900	59.00	15800	158.00	25700	257.00
60	6000	60.00	15900	159.00	25800	258.00
61	6100	61.00	16000	160.00	25900	259.00
62	6200	62.00	16100	161.00	26000	260.00
63	6300	63.00	16200	162.00	26100	261.00
64	6400	64.00	16300	163.00	26200	262.00
65	6500	65.00	16400	164.00	26300	263.00
66	6600	66.00	16500	165.00	26400	264.00
67	6700	67.00	16600	166.00	26500	265.00
68	6800	68.00	16700	167.00	26600	266.00
69	6900	69.00	16800	168.00	26700	267.00
70	7000	70.00	16900	169.00	26800	268.00
71	7100	71.00	17000	170.00	26900	269.00
72	7200	72.00	17100	171.00	27000	270.00
73	7300	73.00	17200	172.00	27100	271.00
74	7400	74.00	17300	173.00	27200	272.00
75	7500	75.00	17400	174.00	27300	273.00
76	7600	76.00	17500	175.00	27400	274.00
77	7700	77.00	17600	176.00	27500	275.00
78	7800	78.00	17700	177.00	27600	276.00
79	7900	79.00	17800	178.00	27700	277.00
80	8000	80.00	17900	179.00	27800	278.00
81	8100	81.00	18000	180.00	27900	279.00
82	8200	82.00	18100	181.00	28000	280.00
83	8300	83.00	18200	182.00	28100	281.00
84	8400	84.00	18300	183.00	28200	282.00
85	8500	85.00	18400	184.00	28300	283.00
86	8600	86.00	18500	185.00	28400	284.00
87	8700	87.00	18600	186.00	28500	285.00
88	8800	88.00	18700	187.00	28600	286.00
89	8900	89.00	18800	188.00	28700	287.00
90	9000	90.00	18900	189.00	28800	288.00
91	9100	91.00	19000	190.00	28900	289.00
92	9200	92.00	19100	191.00	29000	290.00
93	9300	93.00	19200	192.00	29100	291.00
94	9400	94.00	19300	193.00	29200	292.00
95	9500	95.00	19400	194.00	29300	293.00
96	9600	96.00	19500	195.00	29400	294.00
97	9700	97.00	19600	196.00	29500	295.00
98	9800	98.00	19700	197.00	29600	296.00
99	9900	99.00	19800	198.00	29700	297.00
100	10000	100.00	19900	199.00	29800	298.00
101	10100	101.00	20000	200.00	29900	299.00
102	10200	102.00	20100	201.00	30000	300.00
103	10300	103.00	20200	202.00		
104	10400	104.00	20300	203.00		
105	10500	105.00	20400	204.00		
106	10600	106.00	20500	205.00		
107	10700	107.00	20600	206.00		
108	10800	108.00	20700	207.00		
109	10900	109.00	20800	208.00		
110	11000	110.00	20900	209.00		
111	11100	111.00	21000	210.00		
112	11200	112.00	21100	211.00		
113	11300	113.00	21200	212.00		
114	11400	114.00	21300	213.00		
115	11500	115.00	21400	214.00		
116	11600	116.00	21500	215.00		
117	11700	117.00	21600	216.00		
118	11800	118.00	21700	217.00		
119	11900	119.00	21800	218.00		
120	12000	120.00	21900	219.00		
121	12100	121.00	22000	220.00		
122	12200	122.00	22100	221.00		
123	12300	123.00	22200	222.00		
124	12400	124.00	22300	223.00		
125	12500	125.00	22400	224.00		
126	12600	126.00	22500	225.00		
127	12700	127.00	22600	226.00		
128	12800	128.00	22700	227.00		
129	12900	129.00	22800	228.00		
130	13000	130.00	22900	229.00		
131	13100	131.00	23000	230.00		
132	13200	132.00	23100	231.00		
133	13300	133.00	23200	232.00		
134	13400	134.00	23300	233.00		
135	13500	135.00	23400	234.00		
136	13600	136.00	23500	235.00		
137	13700	137.00	23600	236.00		
138	13800	138.00	23700	237.00		
139	13900	139.00	23800	238.00		
140	14000	140.00	23900	239.00		
141	14100	141.00	24000	240.00		
142	14200	142.00	24100	241.00		
143	14300	143.00	24200	242.00		
144	14400	144.00	24300	243.00		
145	14500	145.00	24400	244.00		
146	14600	146.00	24500	245.00		
147	14700	147.00	24600	246.00		
148	14800	148.00	24700	247.00		
149	14900	149.00	24800	248.00		
150	15000	150.00	24900	249.00		
151	15100	151.00	25000	250.00		
152	15200	152.00	25100	251.00		
153	15300	153.00	25200	252.00		
154	15400	154.00	25300	253.00		
155	15500	155.00	25400	254.00		
156	15600	156.00	25500	255.00		
157	15700	157.00	25600	256.00		
158	15800	158.00	25700	257.00		
159	15900	159.00	25800	258.00		
160	16000	160.00	25900	259.00		
161	16100	161.00	26000	260.00		
162	16200	162.00	26100	261.00		
163	16300	163.00	26200	262.00		
164	16400	164.00	26300	263.00		
165	16500	165.00	26400	264.00		
166	16600	166.00	26500	265.00		
167	16700	167.00	26600	266.00		
168	16800	168.00	26700	267.00		
169	16900	169.00	26800	268.00		
170	17000	170.00	26900	269.00		
171	17100	171.00	27000	270.00		
172	17200	172.00	27100	271.00		
173	17300	173.00	27200	272.00		
174	17400	174.00	27300	273.00		
175	17500	175.00	27400	274.00		
176	17600	176.00	27500	275.00		
177	17700	177.00	27600	276.00		
178	17800	178.00	27700	277.00		
179	17900	179.00	27800	278.00		
180	18000	180.00	27900	279.00		
181	18100	181.00	28000	280.00		
182	18200	182.00	28100	281.00		
183	18300	183.00	2			

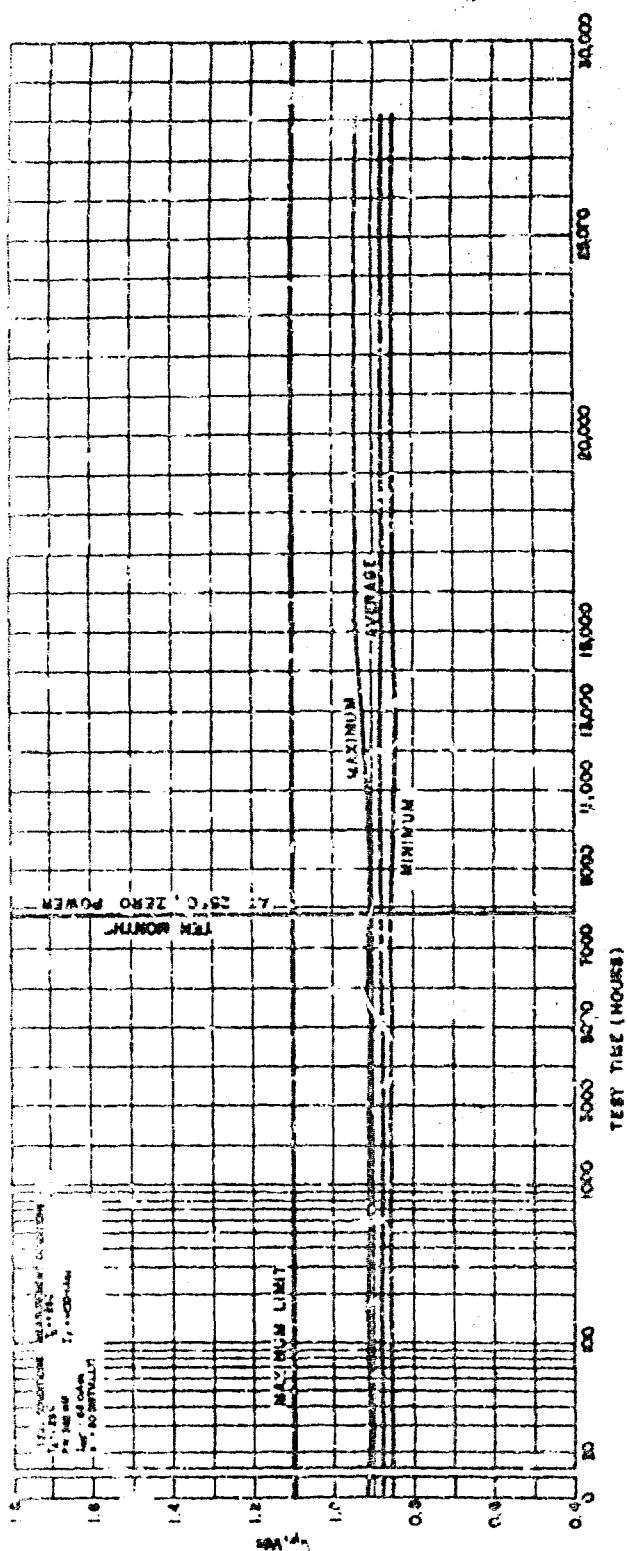




TEST NO.	AVG. VALUE	MAX. VALUE	MIN. VALUE	FAIL. VALUE
1	5.154	5.170	5.132	5.210
2	5.154	5.170	5.132	5.210
3	5.154	5.170	5.132	5.210
4	5.154	5.170	5.132	5.210
5	5.154	5.170	5.132	5.210
6	5.154	5.170	5.132	5.210
7	5.154	5.170	5.132	5.210
8	5.154	5.170	5.132	5.210
9	5.154	5.170	5.132	5.210
10	5.154	5.170	5.132	5.210
11	5.154	5.170	5.132	5.210
12	5.154	5.170	5.132	5.210
13	5.154	5.170	5.132	5.210
14	5.154	5.170	5.132	5.210
15	5.154	5.170	5.132	5.210
16	5.154	5.170	5.132	5.210
17	5.154	5.170	5.132	5.210
18	5.154	5.170	5.132	5.210
19	5.154	5.170	5.132	5.210
20	5.154	5.170	5.132	5.210
21	5.154	5.170	5.132	5.210
22	5.154	5.170	5.132	5.210
23	5.154	5.170	5.132	5.210
24	5.154	5.170	5.132	5.210
25	5.154	5.170	5.132	5.210
26	5.154	5.170	5.132	5.210
27	5.154	5.170	5.132	5.210
28	5.154	5.170	5.132	5.210
29	5.154	5.170	5.132	5.210
30	5.154	5.170	5.132	5.210
31	5.154	5.170	5.132	5.210
32	5.154	5.170	5.132	5.210
33	5.154	5.170	5.132	5.210
34	5.154	5.170	5.132	5.210
TOTAL FAILURES	2	1	1	1

Figure 3-35. R200RP3, Phase V, BV

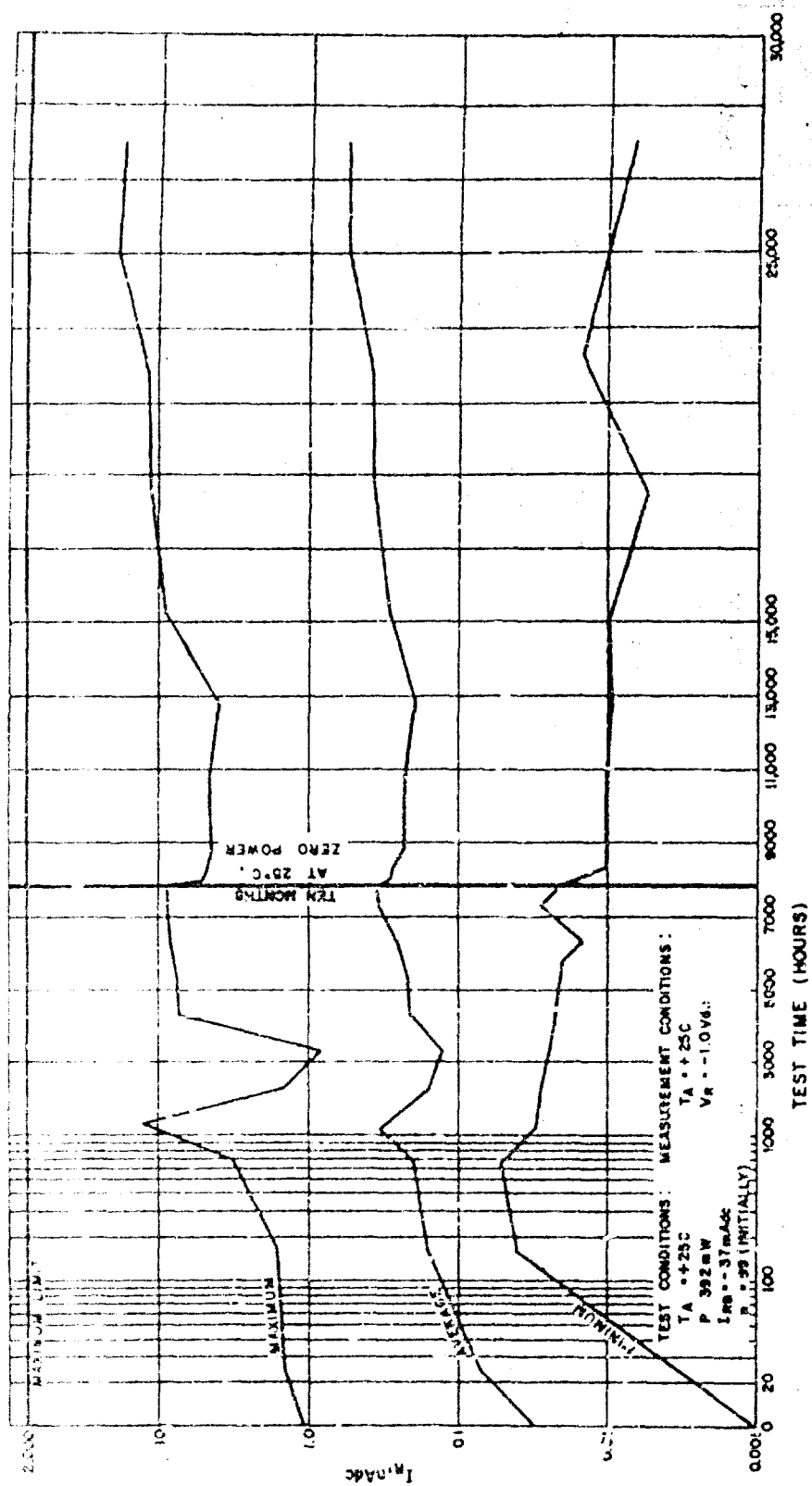




TEST ROOM	WATER VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	QUANTITY
1	0.000	0.000	0.000	0.000	1
2	0.000	0.000	0.000	0.000	1
3	0.000	0.000	0.000	0.000	1
4	0.000	0.000	0.000	0.000	1
5	0.000	0.000	0.000	0.000	1
6	0.000	0.000	0.000	0.000	1
7	0.000	0.000	0.000	0.000	1
8	0.000	0.000	0.000	0.000	1
9	0.000	0.000	0.000	0.000	1
10	0.000	0.000	0.000	0.000	1
11	0.000	0.000	0.000	0.000	1
12	0.000	0.000	0.000	0.000	1
13	0.000	0.000	0.000	0.000	1
14	0.000	0.000	0.000	0.000	1
15	0.000	0.000	0.000	0.000	1
16	0.000	0.000	0.000	0.000	1
17	0.000	0.000	0.000	0.000	1
18	0.000	0.000	0.000	0.000	1
19	0.000	0.000	0.000	0.000	1
20	0.000	0.000	0.000	0.000	1
21	0.000	0.000	0.000	0.000	1
22	0.000	0.000	0.000	0.000	1
23	0.000	0.000	0.000	0.000	1
24	0.000	0.000	0.000	0.000	1
25	0.000	0.000	0.000	0.000	1
26	0.000	0.000	0.000	0.000	1
27	0.000	0.000	0.000	0.000	1
28	0.000	0.000	0.000	0.000	1
29	0.000	0.000	0.000	0.000	1
30	0.000	0.000	0.000	0.000	1
31	0.000	0.000	0.000	0.000	1
32	0.000	0.000	0.000	0.000	1
33	0.000	0.000	0.000	0.000	1
34	0.000	0.000	0.000	0.000	1
35	0.000	0.000	0.000	0.000	1
36	0.000	0.000	0.000	0.000	1
37	0.000	0.000	0.000	0.000	1
38	0.000	0.000	0.000	0.000	1
39	0.000	0.000	0.000	0.000	1
40	0.000	0.000	0.000	0.000	1
41	0.000	0.000	0.000	0.000	1
42	0.000	0.000	0.000	0.000	1
43	0.000	0.000	0.000	0.000	1
44	0.000	0.000	0.000	0.000	1
45	0.000	0.000	0.000	0.000	1
46	0.000	0.000	0.000	0.000	1
47	0.000	0.000	0.000	0.000	1
48	0.000	0.000	0.000	0.000	1
49	0.000	0.000	0.000	0.000	1
50	0.000	0.000	0.000	0.000	1
51	0.000	0.000	0.000	0.000	1
52	0.000	0.000	0.000	0.000	1
53	0.000	0.000	0.000	0.000	1
54	0.000	0.000	0.000	0.000	1
55	0.000	0.000	0.000	0.000	1
56	0.000	0.000	0.000	0.000	1
57	0.000	0.000	0.000	0.000	1
58	0.000	0.000	0.000	0.000	1
59	0.000	0.000	0.000	0.000	1
60	0.000	0.000	0.000	0.000	1
61	0.000	0.000	0.000	0.000	1
62	0.000	0.000	0.000	0.000	1
63	0.000	0.000	0.000	0.000	1
64	0.000	0.000	0.000	0.000	1
65	0.000	0.000	0.000	0.000	1
66	0.000	0.000	0.000	0.000	1
67	0.000	0.000	0.000	0.000	1
68	0.000	0.000	0.000	0.000	1
69	0.000	0.000	0.000	0.000	1
70	0.000	0.000	0.000	0.000	1
71	0.000	0.000	0.000	0.000	1
72	0.000	0.000	0.000	0.000	1
73	0.000	0.000	0.000	0.000	1
74	0.000	0.000	0.000	0.000	1
75	0.000	0.000	0.000	0.000	1
76	0.000	0.000	0.000	0.000	1
77	0.000	0.000	0.000	0.000	1
78	0.000	0.000	0.000	0.000	1
79	0.000	0.000	0.000	0.000	1
80	0.000	0.000	0.000	0.000	1
81	0.000	0.000	0.000	0.000	1
82	0.000	0.000	0.000	0.000	1
83	0.000	0.000	0.000	0.000	1
84	0.000	0.000	0.000	0.000	1
85	0.000	0.000	0.000	0.000	1
86	0.000	0.000	0.000	0.000	1
87	0.000	0.000	0.000	0.000	1
88	0.000	0.000	0.000	0.000	1
89	0.000	0.000	0.000	0.000	1
90	0.000	0.000	0.000	0.000	1
91	0.000	0.000	0.000	0.000	1
92	0.000	0.000	0.000	0.000	1
93	0.000	0.000	0.000	0.000	1
94	0.000	0.000	0.000	0.000	1
95	0.000	0.000	0.000	0.000	1
96	0.000	0.000	0.000	0.000	1
97	0.000	0.000	0.000	0.000	1
98	0.000	0.000	0.000	0.000	1
99	0.000	0.000	0.000	0.000	1
100	0.000	0.000	0.000	0.000	1
TOTAL FILLING					54



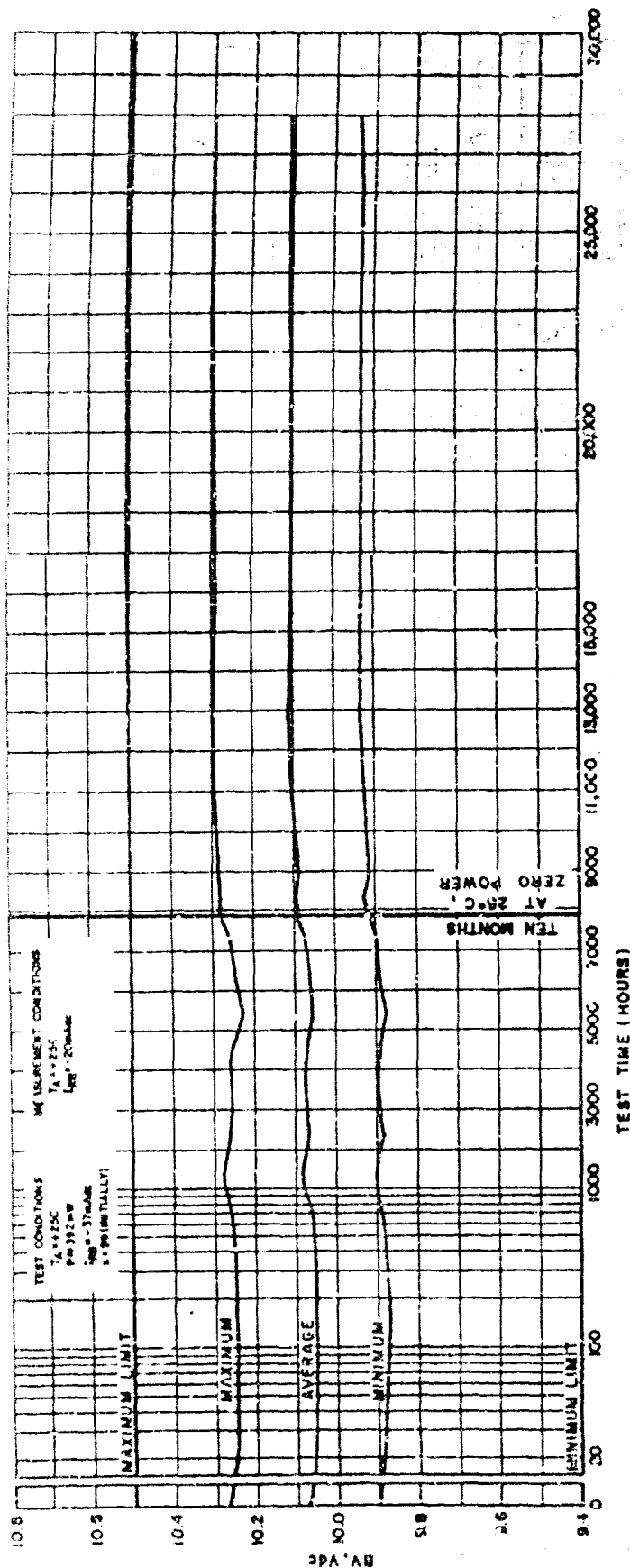




TEST TIME	AV. V <sub>R</sub> (Vdc)	AV. I <sub>R</sub> (mAdc)	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
100	0.423	0.423	0.010	0.403	0.443
200	0.423	0.423	0.010	0.403	0.443
300	0.423	0.423	0.010	0.403	0.443
400	0.423	0.423	0.010	0.403	0.443
500	0.423	0.423	0.010	0.403	0.443
600	0.423	0.423	0.010	0.403	0.443
700	0.423	0.423	0.010	0.403	0.443
800	0.423	0.423	0.010	0.403	0.443
900	0.423	0.423	0.010	0.403	0.443
1000	0.423	0.423	0.010	0.403	0.443
1500	0.423	0.423	0.010	0.403	0.443
2000	0.423	0.423	0.010	0.403	0.443
3000	0.423	0.423	0.010	0.403	0.443
4000	0.423	0.423	0.010	0.403	0.443
5000	0.423	0.423	0.010	0.403	0.443
6000	0.423	0.423	0.010	0.403	0.443
7000	0.423	0.423	0.010	0.403	0.443
8000	0.423	0.423	0.010	0.403	0.443
9000	0.423	0.423	0.010	0.403	0.443
10000	0.423	0.423	0.010	0.403	0.443
15000	0.423	0.423	0.010	0.403	0.443
20000	0.423	0.423	0.010	0.403	0.443
25000	0.423	0.423	0.010	0.403	0.443
30000	0.423	0.423	0.010	0.403	0.443

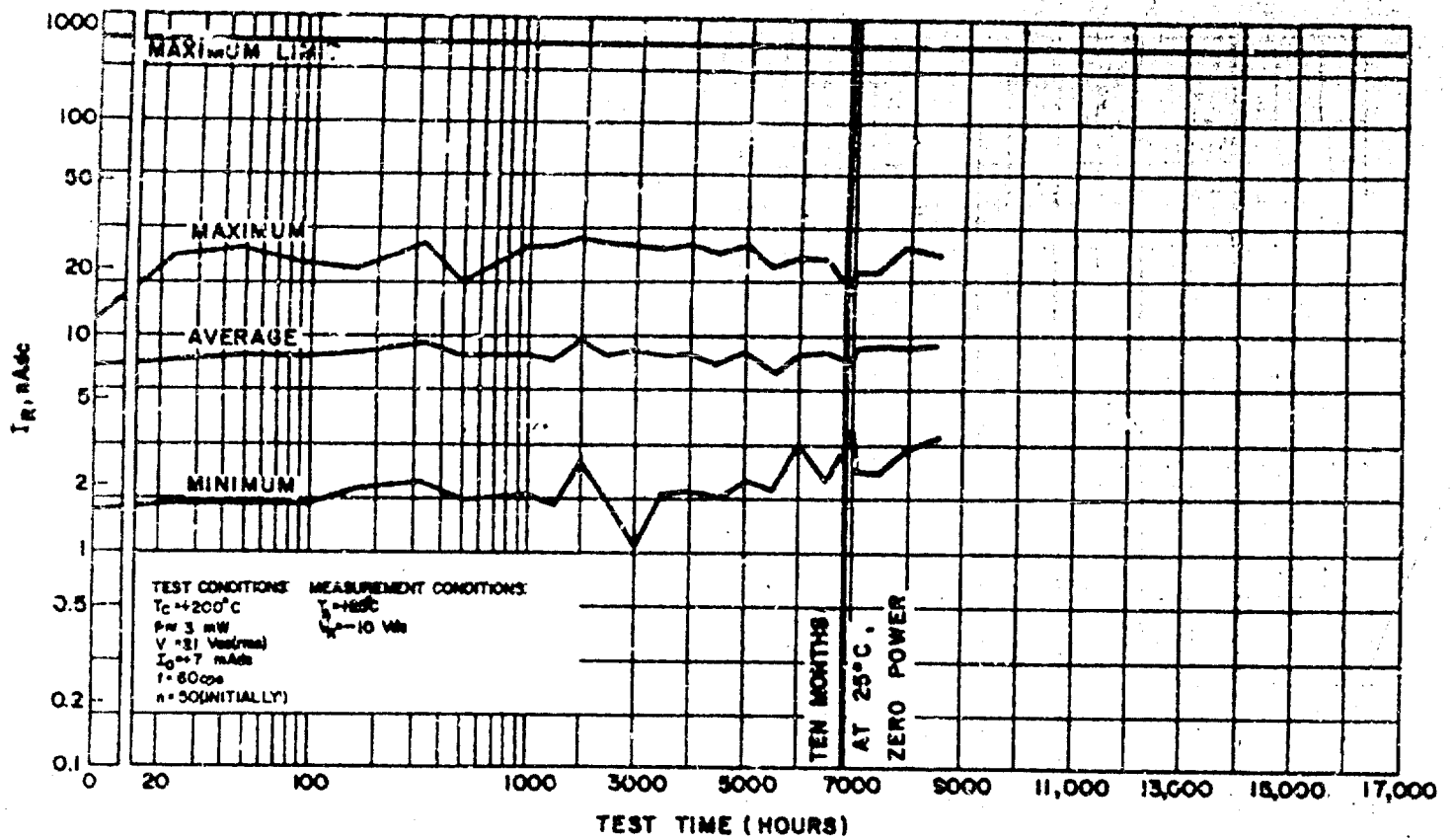
Figure 3-39. Parameter Trend Chart, R2008P10, Ambient Life, I<sub>R</sub>





TEST HOUR	AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
0	10.073	0.004	9.994	10.240
24	10.056	0.005	9.989	10.240
144	10.056	0.005	9.989	10.240
672	10.062	0.005	9.989	10.240
1344	10.066	0.005	9.989	10.240
2688	10.065	0.005	9.989	10.240
5376	10.071	0.005	9.989	10.240
10752	10.072	0.005	9.989	10.240
21504	10.091	0.005	9.989	10.240
43008	10.093	0.005	9.989	10.240
86016	10.088	0.005	9.989	10.240
172032	10.086	0.005	9.989	10.240
344064	10.084	0.005	9.989	10.240
688128	10.112	0.005	9.989	10.240
1376256	10.119	0.005	9.989	10.240
2752512	10.116	0.005	9.989	10.240
5505024	10.105	0.005	9.989	10.240
11010048	10.101	0.005	9.989	10.240
22020096	10.101	0.005	9.989	10.240
44040192	10.108	0.005	9.989	10.240
88080384	10.093	0.005	9.989	10.240

Figure 3-41. Parameter Trend Chart, R200SP10, Ambient Life, BV



PH 4 R201CP 1A

IF VALUES IN NANJAMPS

49 PARTS

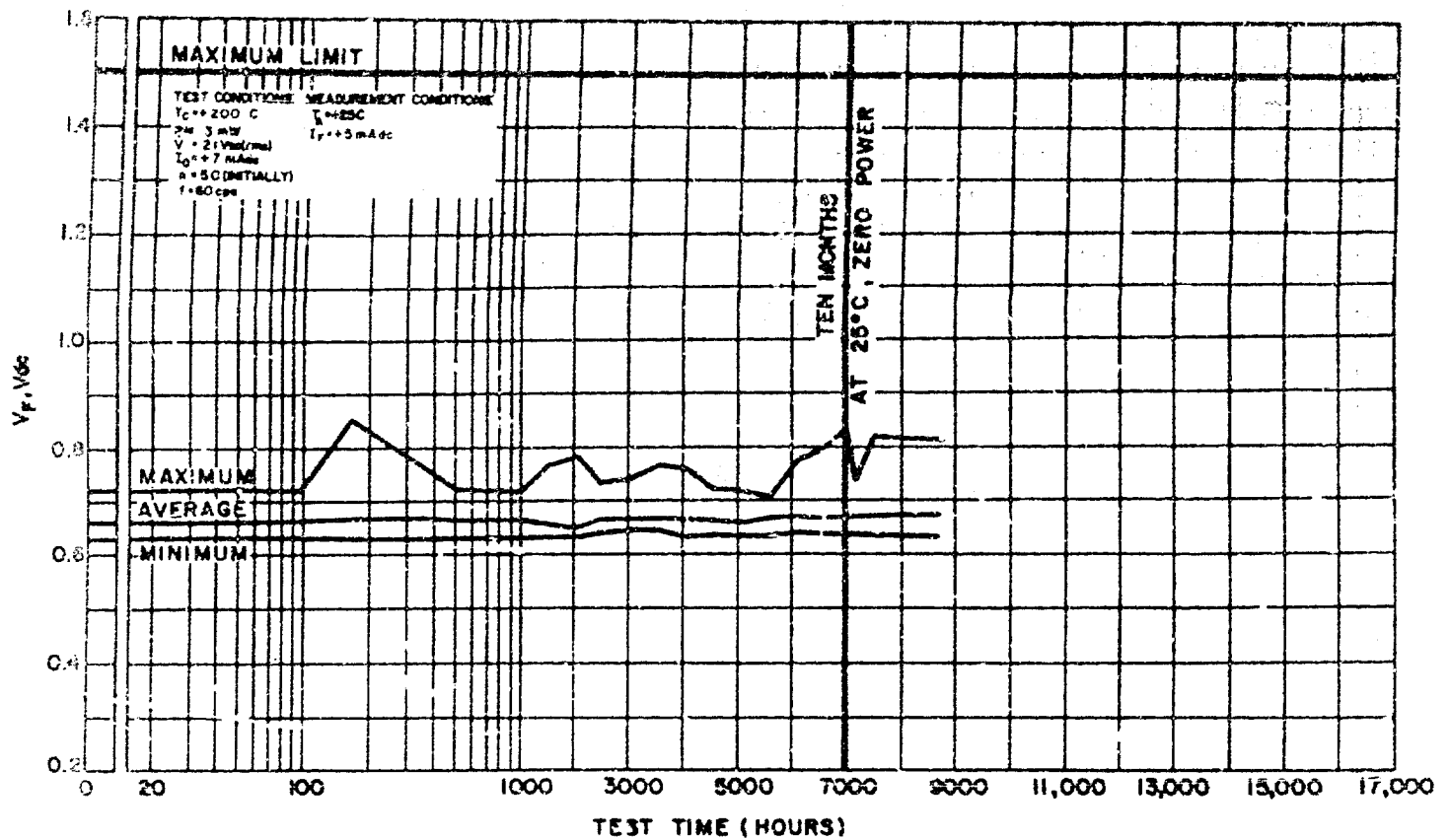
TEST HOURS	AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
0.	7.157	1.523	1.650	11.500
24.	7.940	3.067	1.720	24.500
48.	8.132	3.127	1.730	25.000
50.	8.105	3.022	1.700	24.000
100.	8.670	2.433	1.950	28.000
240.	9.353	1.457	2.150	26.800
504.	8.084	1.224	1.800	26.500
1000.	8.507	3.469	1.900	24.500
1512.	7.700	3.308	1.700	26.500
2000.	9.099	3.769	2.070	25.100
2400.	8.054	3.502	1.800	28.000
3000.	9.417	3.583	1.050	25.500
3500.	7.504	3.322	1.900	25.800
4000.	8.410	1.505	1.990	25.800
4500.	7.244	3.257	1.850	24.500
5000.	8.291	3.516	2.250	26.000
5500.	6.793	2.978	1.900	21.500
6000.	8.018	3.131	3.100	23.000
6500.	8.534	3.407	2.400	23.000
7000.	7.702	4.709	3.000	23.000
7110.	9.000	3.107	2.400	18.000
7440.	3.410	3.532	2.400	19.500
7500.	8.053	3.404	3.000	19.800
8000.	9.280	4.121	3.500	20.500
TOTAL FAILURES		TIME TO FAILURE (HRS)	QUANTITY	

1

1000

1

Figure 3-42. Parameter Trend Chart, R2010P1 Phase IV,  $I_R$



PH 4 R2010P1 VF

MATRIX OF VF VALUES IN VOLTS

49 PARTS

TEST POINTS	AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
0.	0.660	0.016	0.633	0.720
24.	0.660	0.016	0.636	0.721
48.	0.659	0.017	0.636	0.721
96.	0.662	0.016	0.636	0.721
168.	0.667	0.022	0.635	0.753
360.	0.665	0.029	0.632	0.769
904.	0.661	0.016	0.635	0.722
1808.	0.661	0.019	0.634	0.719
3612.	0.661	0.023	0.633	0.766
7208.	0.659	0.024	0.636	0.770
14436.	0.662	0.022	0.638	0.792
28872.	0.666	0.029	0.643	0.743
57744.	0.663	0.025	0.642	0.765
115488.	0.664	0.025	0.631	0.758
230976.	0.662	0.018	0.635	0.720
461952.	0.659	0.018	0.636	0.719
923904.	0.658	0.017	0.633	0.707
1847808.	0.667	0.025	0.639	0.773
3695616.	0.667	0.026	0.639	0.762
7391232.	0.670	0.032	0.639	0.833
14782464.	0.675	0.021	0.636	0.799
29564928.	0.669	0.025	0.635	0.816
59129856.	0.664	0.027	0.634	0.815
118259712.	0.663	0.030	0.633	0.813

TOTAL FAILURES

TIME TO FAILURE (HRS)

QUANTITY

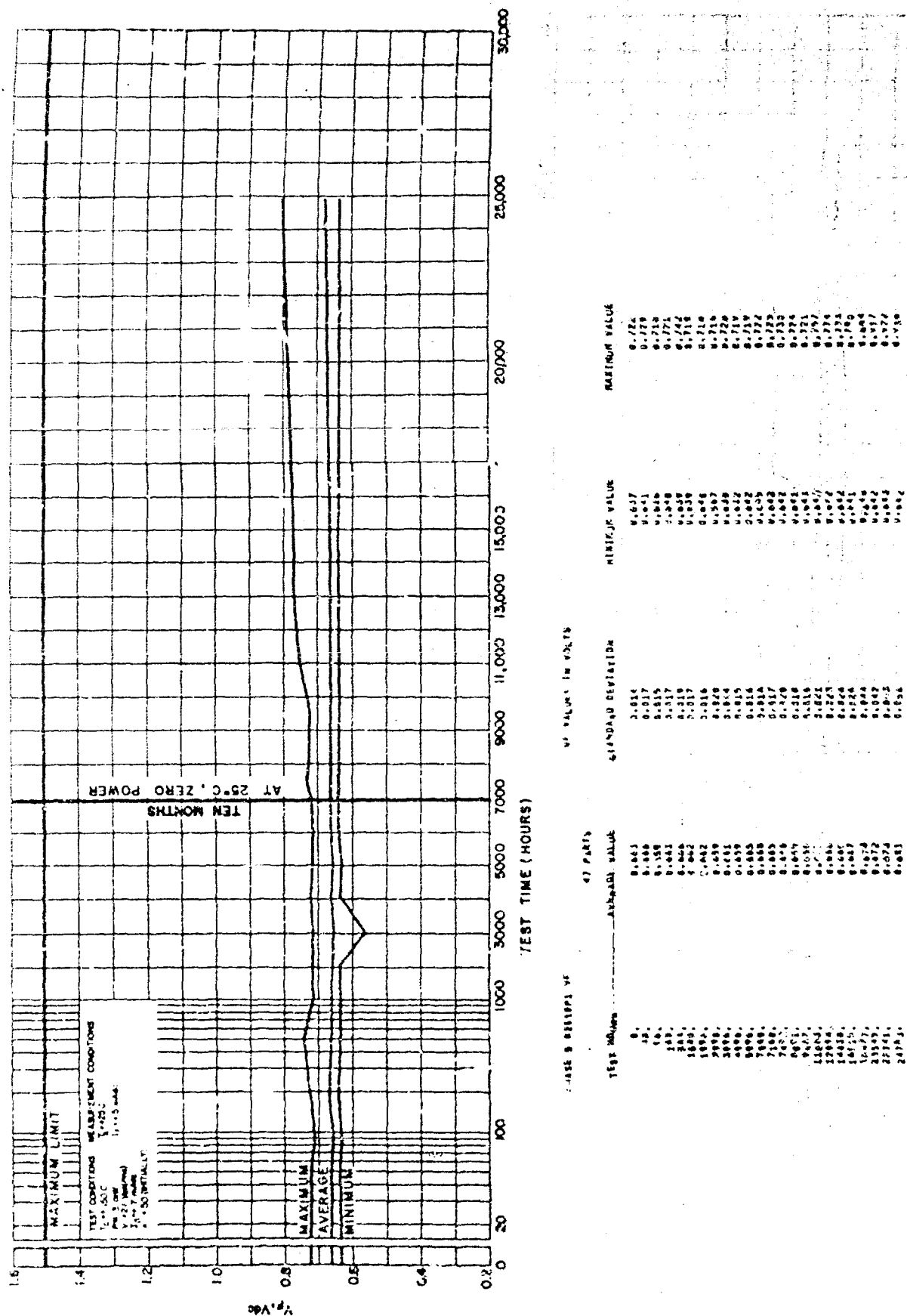
1

4050

1

Figure 3-43. Parameter Trend Chart, R2010P1 Phase IV,  $V_F$

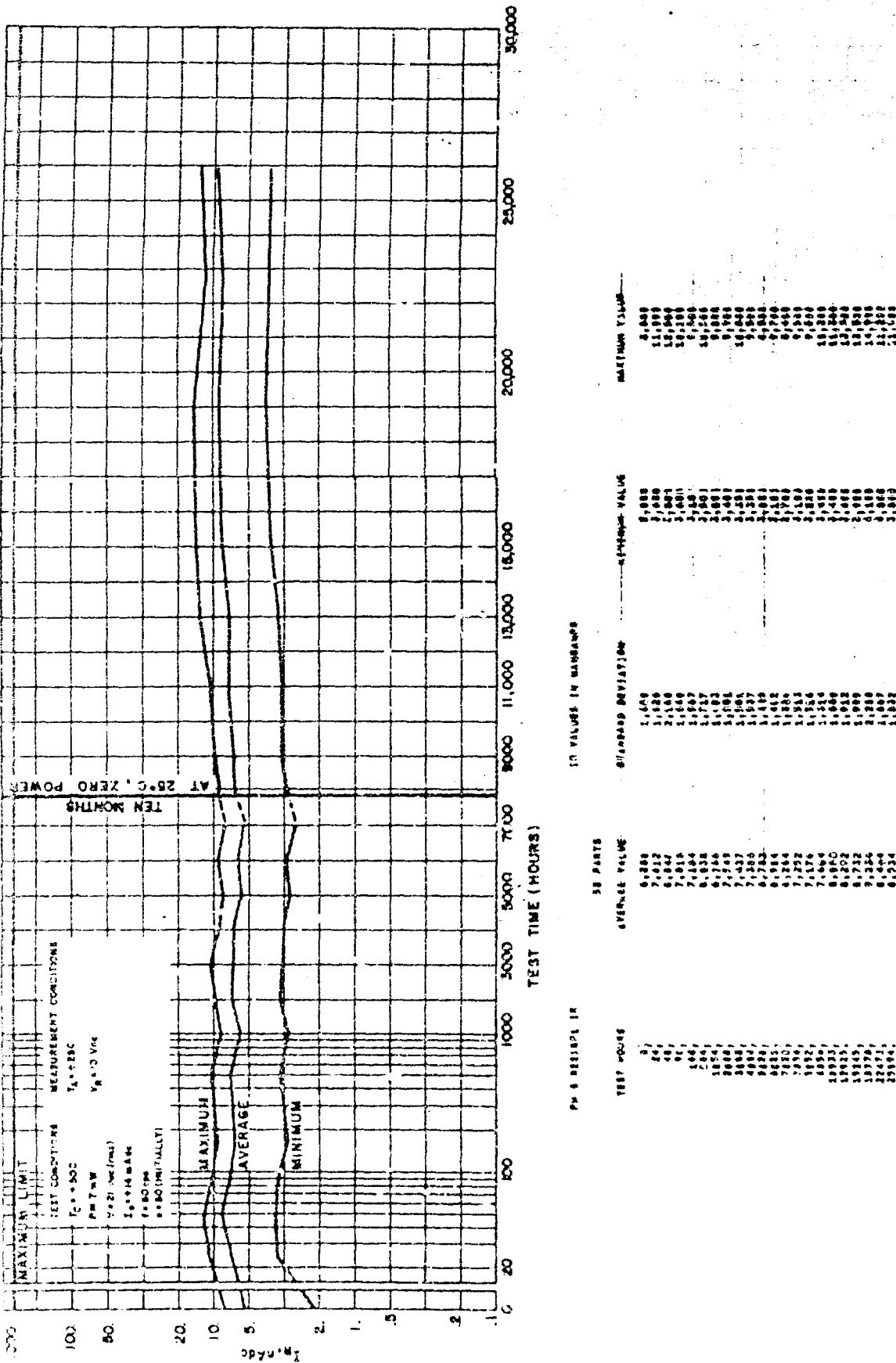




No Failures

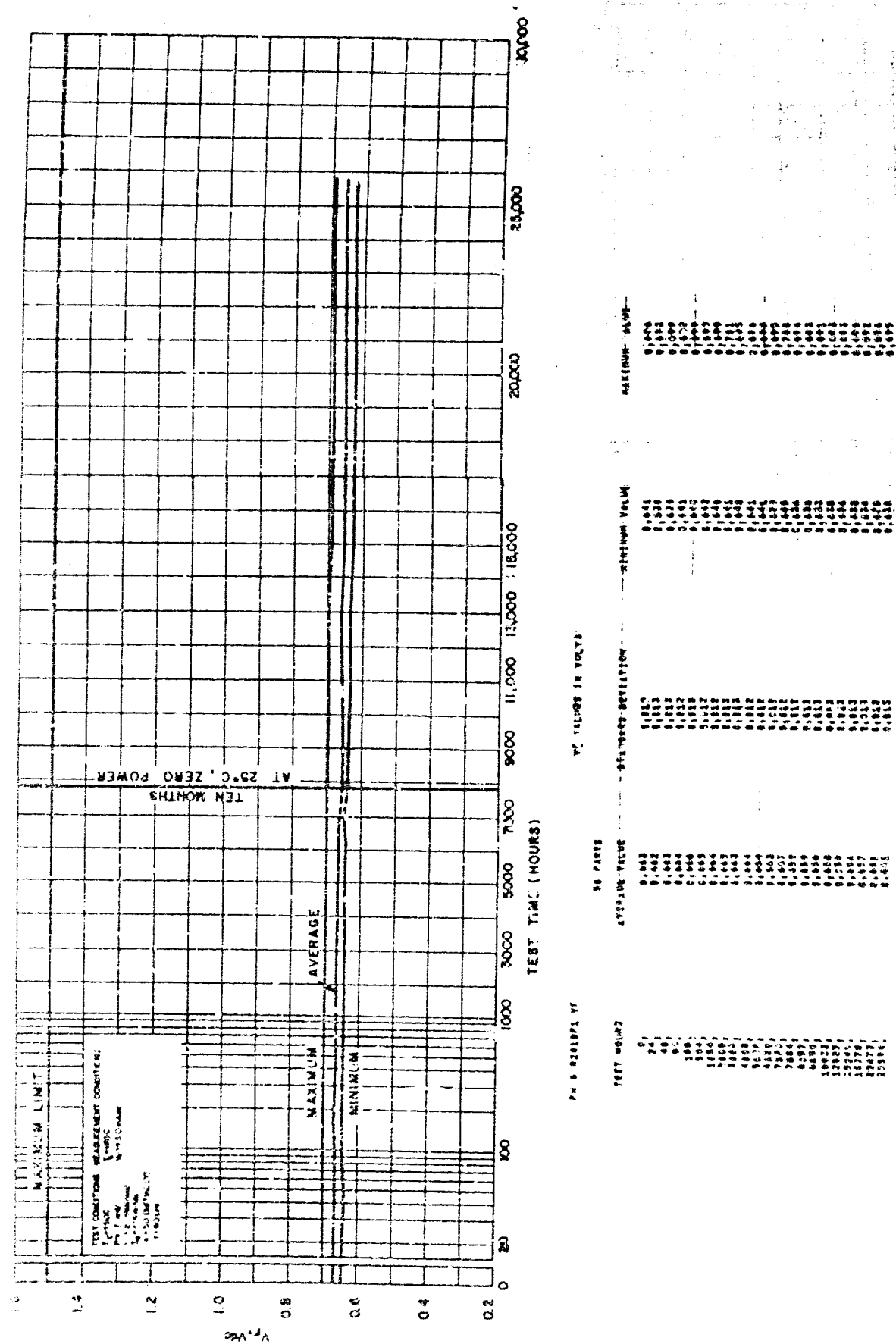
Figure 3-45. Parameter Trend Chart R2010P1 Phase V, V\_F Group I





No Failures

Figure 3-46. Parameter Trend Chart R2010P1 Phase VI, I<sub>R</sub>

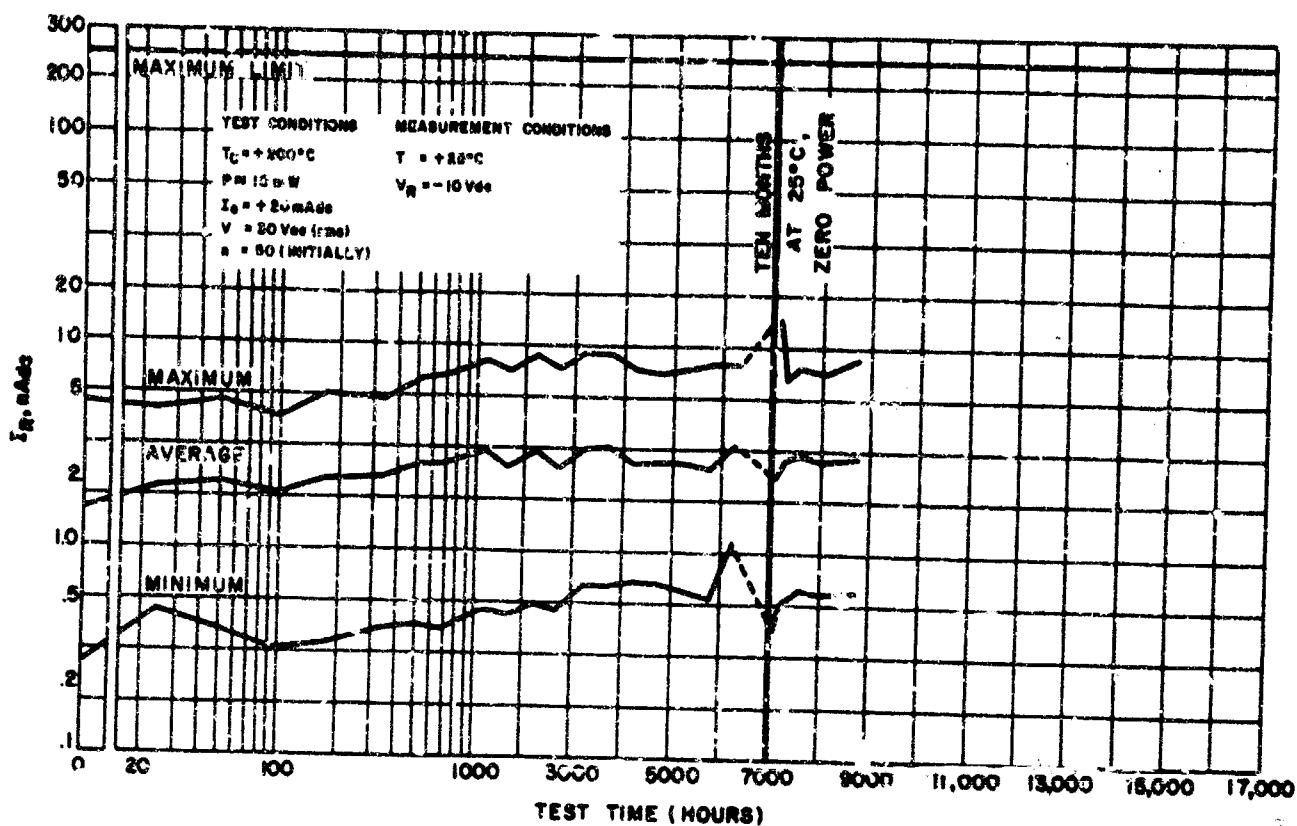


No Failures

Figure 3-47. Parameter Trend Chart R2010P1 Phase VI,  $V_F$







PH 4 R2011P1 10

IR VALUES IN NANOAmps

44 PARTS				
TEST HOURS	AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
0.	1.488	0.900	0.260	4.820
24.	1.962	0.954	0.490	4.720
48.	2.143	1.083	0.400	3.860
72.	1.882	0.948	0.320	4.430
168.	2.287	1.229	0.390	5.800
336.	2.345	1.261	0.420	5.800
504.	2.600	1.436	0.430	6.600
672.	2.700	1.595	0.430	7.200
1176.	2.055	1.789	0.310	6.300
1560.	2.711	1.622	0.480	7.000
2184.	3.118	1.830	0.350	8.900
2688.	2.627	1.579	0.520	7.800
3192.	3.310	1.909	0.690	9.600
3696.	3.416	1.926	0.700	9.700
4158.	2.829	1.560	0.700	7.700
4702.	2.932	1.517	0.710	7.650
5217.	2.410	1.527	0.650	7.700
5710.	2.717	1.598	0.600	8.200
6214.	3.466	1.772	1.130	8.400
7030.	2.436	2.153	0.450	14.200
7167.	2.925	1.581	0.580	7.600
7927.	3.077	1.699	0.680	8.300
8624.	2.905	1.562	0.650	7.900
8885.	3.096	1.668	0.670	9.000

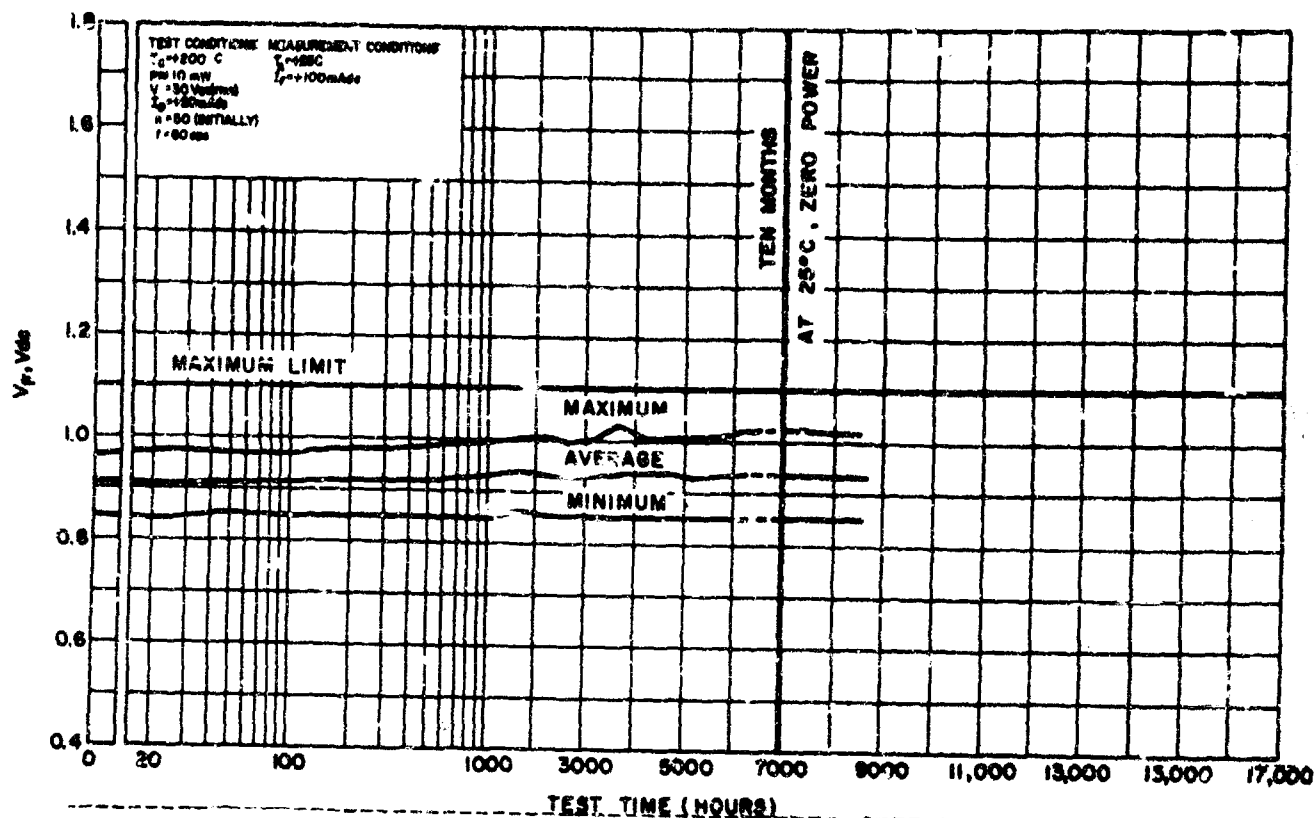
TOTAL FAILURES

TIME TO FAILURE (HRS)

QUANTITY

1176	1
7880	1
7587	1
8084	1

Figure 3-50. Parameter Trend Chart R2011P1, Phase IV,  $I_R$



PH 4 R2011P1 VP

MATRIX OF VP VALUES IN VOLTS

44 PARTS				
TEST HOURS	AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
0.	0.913	0.038	0.880	0.940
40.	0.914	0.038	0.885	0.971
48.	0.917	0.037	0.882	0.974
56.	0.916	0.036	0.882	0.975
168.	0.922	0.037	0.897	0.975
236.	0.924	0.037	0.898	0.981
360.	0.929	0.039	0.899	0.989
472.	0.927	0.039	0.897	0.990
1176.	0.927	0.038	0.897	0.992
1696.	0.941	0.043	0.900	1.000
2184.	0.929	0.043	0.893	1.010
2688.	0.932	0.042	0.898	0.999
3192.	0.931	0.042	0.898	1.000
3696.	0.933	0.040	0.893	1.000
4192.	0.934	0.042	0.893	1.004
4702.	0.935	0.040	0.898	1.004
5217.	0.932	0.045	0.898	1.007
5716.	0.936	0.048	0.899	1.009
6216.	0.938	0.047	0.891	1.010
7030.	0.936	0.046	0.891	1.022
7197.	0.937	0.046	0.893	1.021
7527.	0.936	0.047	0.890	1.020
8024.	0.936	0.047	0.891	1.020
8485.	0.937	0.046	0.893	1.015
TOTAL FAILURES		TIME TO FAILURE (HRS)	QUANTITY	
4		1176	1	
		7080	1	
		7527	1	
		8694	1	

Figure 3-51. Parameter Trend Chart R2011P1, Phase IV,  $V_F$

Figure 3-52. Parameter Trend Chart R2011P1, Phase V, I<sub>R</sub>

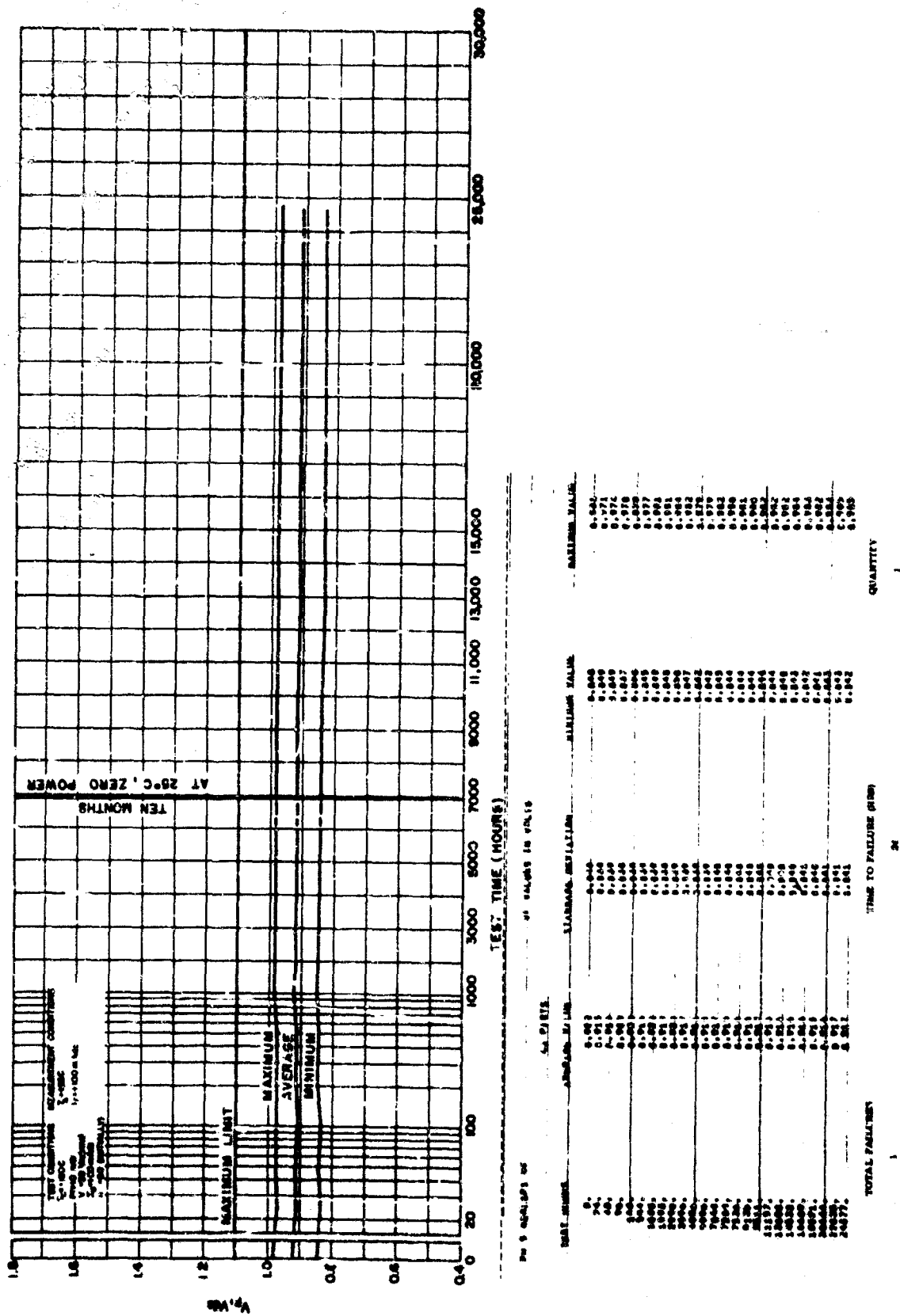


Figure 3-53. Parameter Trend Chart R2011P1, Phase V, V\_F



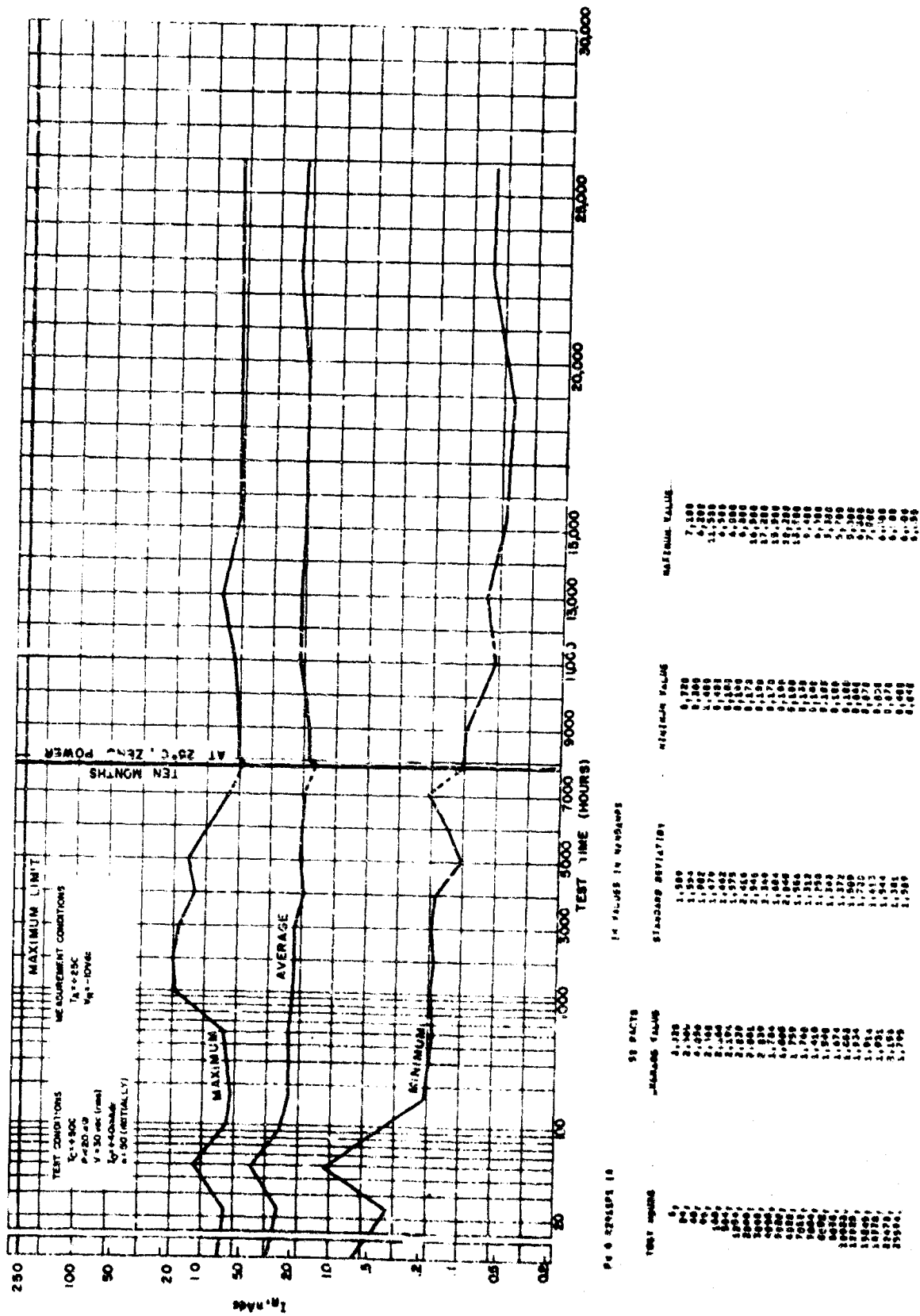


Figure 3-54. Parameter Trend Chart R2011P, Phase VI, I<sub>R</sub>

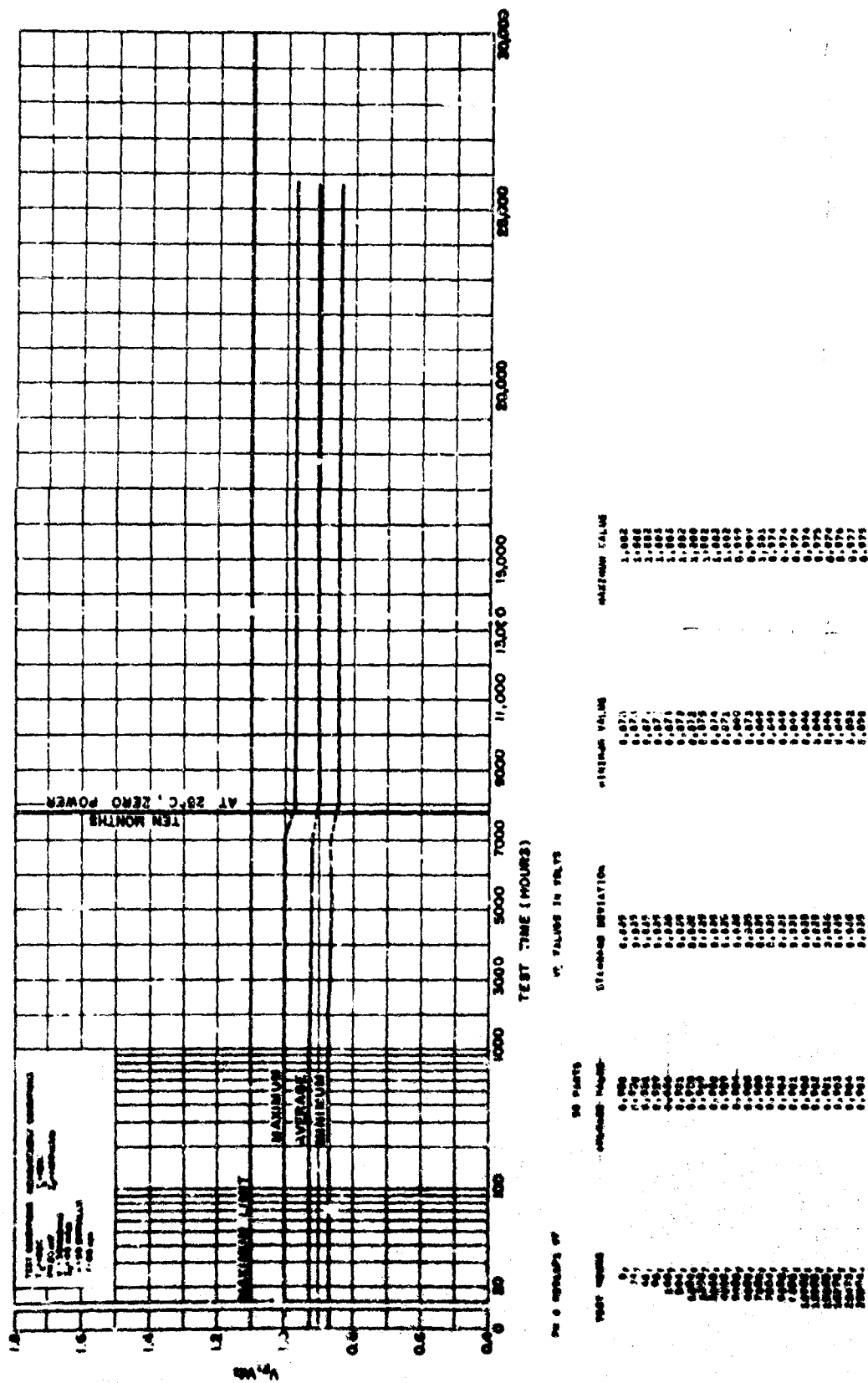


Figure 3-55. Parameter Trend Chart R2011P1, Phase VI, V\_F

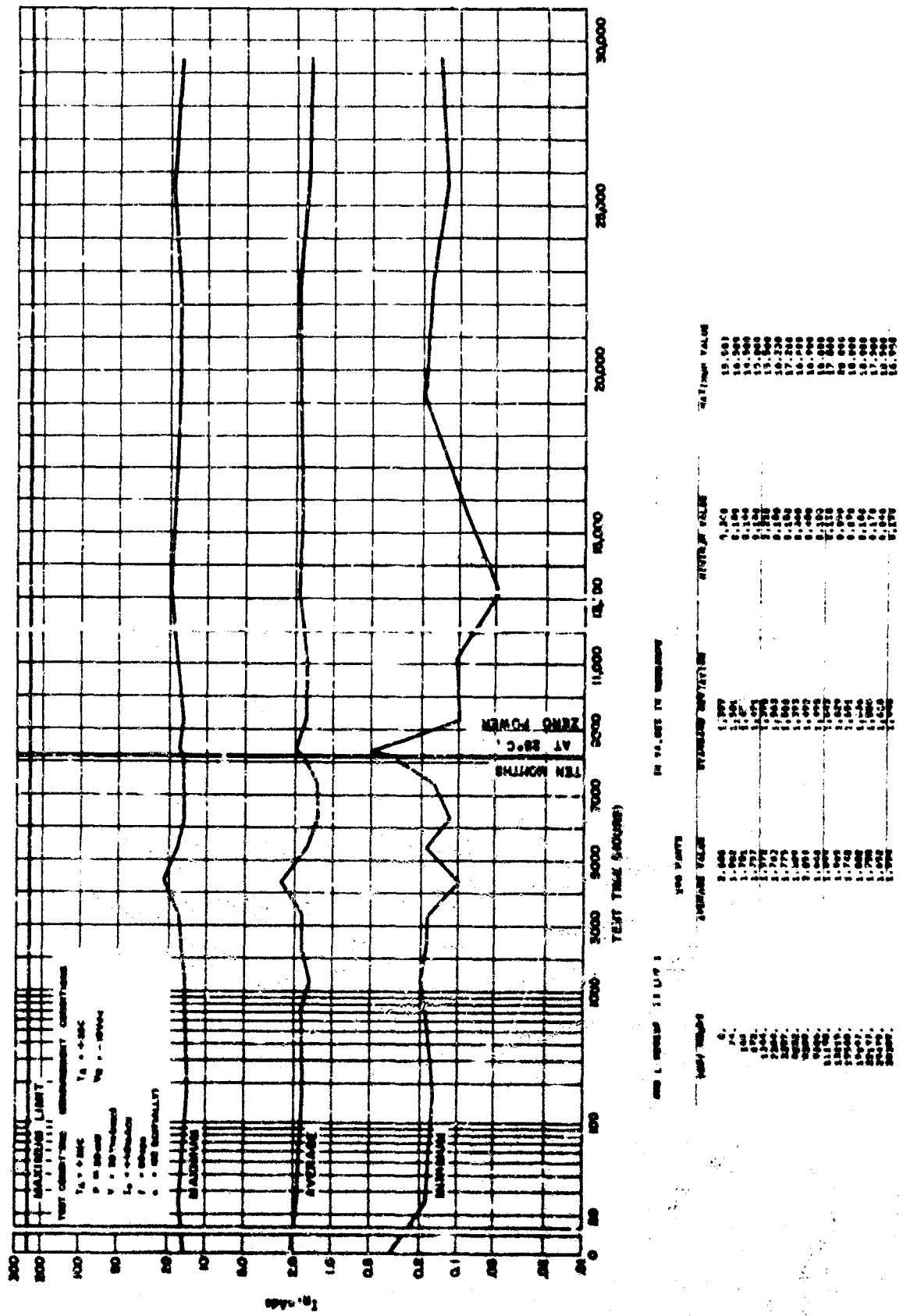
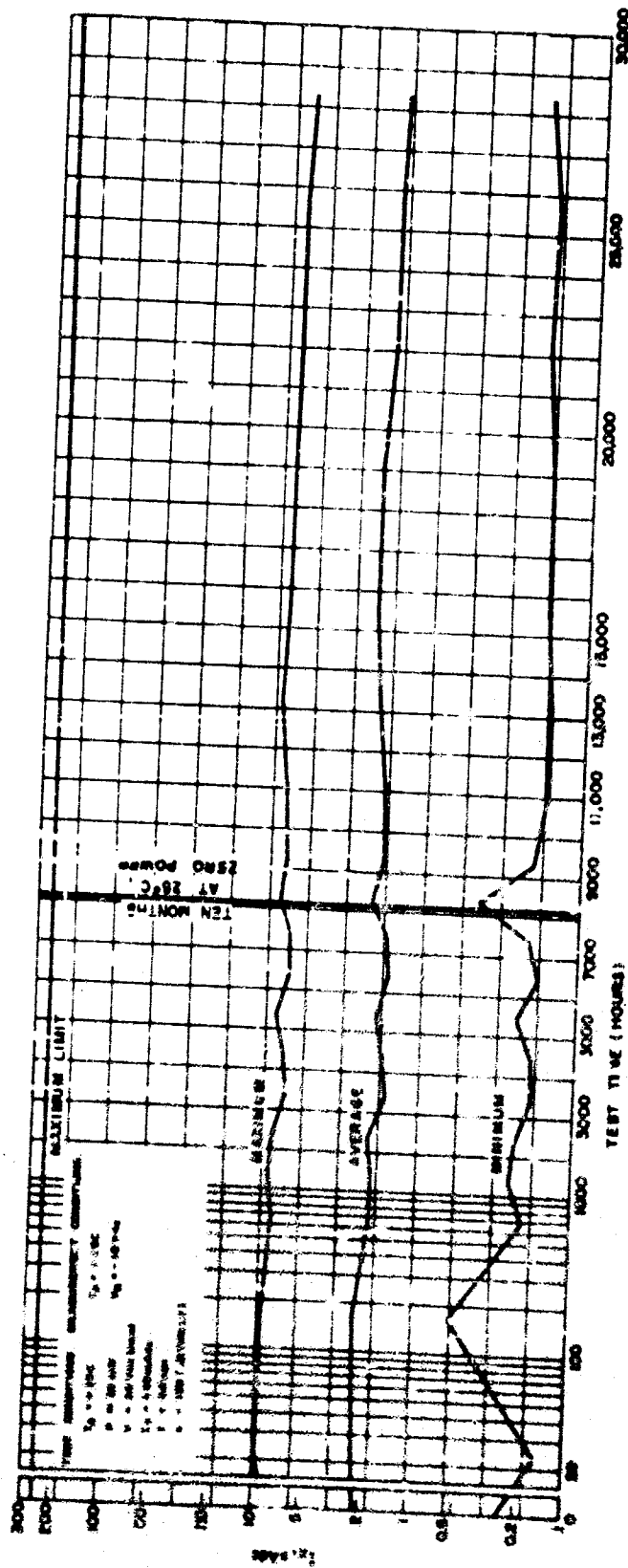


Figure 3-56. Parameter Trend Chart 22011P1, Ambient Life, I<sub>R</sub>, Group I



IN TABLES IN PARALLELS

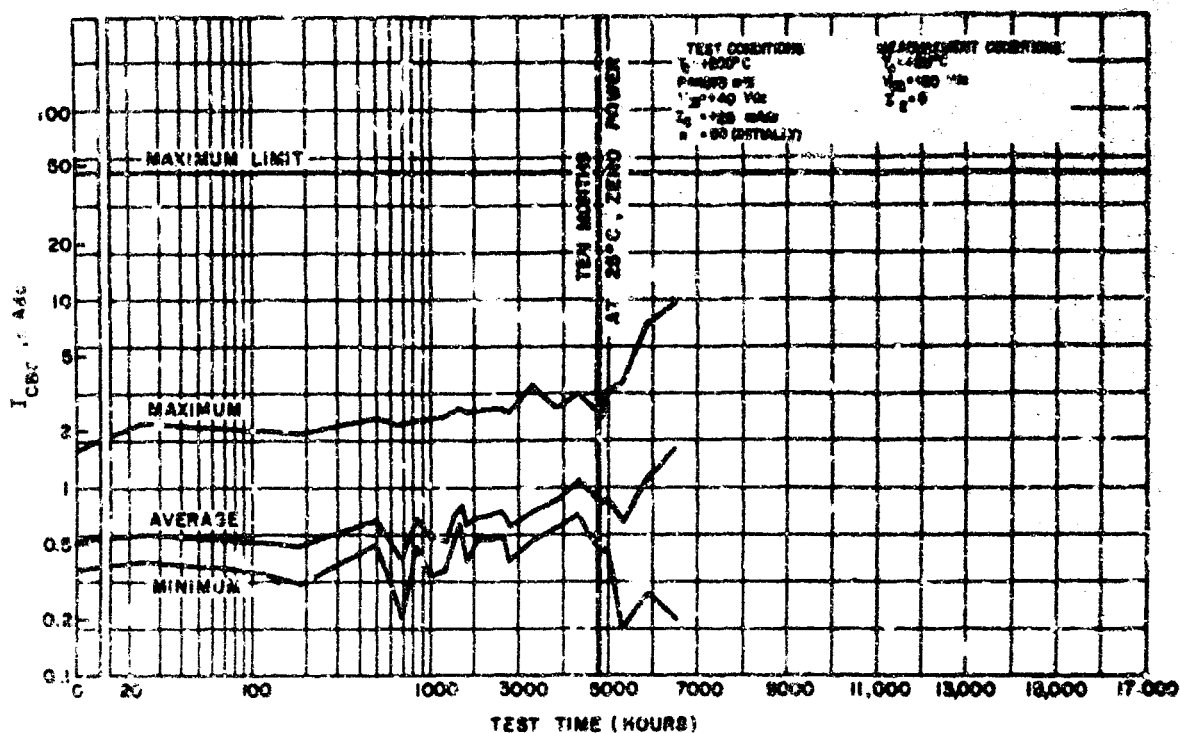
TEST NUMBER	100 PARTS	1000 PARTS	10000 PARTS	PER FAILURE
1	1.127	1.127	1.127	1.127
2	1.127	1.127	1.127	1.127
3	1.127	1.127	1.127	1.127
4	1.127	1.127	1.127	1.127
5	1.127	1.127	1.127	1.127
6	1.127	1.127	1.127	1.127
7	1.127	1.127	1.127	1.127
8	1.127	1.127	1.127	1.127
9	1.127	1.127	1.127	1.127
10	1.127	1.127	1.127	1.127
11	1.127	1.127	1.127	1.127
12	1.127	1.127	1.127	1.127
13	1.127	1.127	1.127	1.127
14	1.127	1.127	1.127	1.127
15	1.127	1.127	1.127	1.127
16	1.127	1.127	1.127	1.127
17	1.127	1.127	1.127	1.127
18	1.127	1.127	1.127	1.127
19	1.127	1.127	1.127	1.127
20	1.127	1.127	1.127	1.127
21	1.127	1.127	1.127	1.127
22	1.127	1.127	1.127	1.127
23	1.127	1.127	1.127	1.127
24	1.127	1.127	1.127	1.127
25	1.127	1.127	1.127	1.127
26	1.127	1.127	1.127	1.127
27	1.127	1.127	1.127	1.127
28	1.127	1.127	1.127	1.127
29	1.127	1.127	1.127	1.127
30	1.127	1.127	1.127	1.127
31	1.127	1.127	1.127	1.127
32	1.127	1.127	1.127	1.127
33	1.127	1.127	1.127	1.127
34	1.127	1.127	1.127	1.127
35	1.127	1.127	1.127	1.127
36	1.127	1.127	1.127	1.127
37	1.127	1.127	1.127	1.127
38	1.127	1.127	1.127	1.127
39	1.127	1.127	1.127	1.127
40	1.127	1.127	1.127	1.127
41	1.127	1.127	1.127	1.127
42	1.127	1.127	1.127	1.127
43	1.127	1.127	1.127	1.127
44	1.127	1.127	1.127	1.127
45	1.127	1.127	1.127	1.127
46	1.127	1.127	1.127	1.127
47	1.127	1.127	1.127	1.127
48	1.127	1.127	1.127	1.127
49	1.127	1.127	1.127	1.127
50	1.127	1.127	1.127	1.127
51	1.127	1.127	1.127	1.127
52	1.127	1.127	1.127	1.127
53	1.127	1.127	1.127	1.127
54	1.127	1.127	1.127	1.127
55	1.127	1.127	1.127	1.127
56	1.127	1.127	1.127	1.127
57	1.127	1.127	1.127	1.127
58	1.127	1.127	1.127	1.127
59	1.127	1.127	1.127	1.127
60	1.127	1.127	1.127	1.127
61	1.127	1.127	1.127	1.127
62	1.127	1.127	1.127	1.127
63	1.127	1.127	1.127	1.127
64	1.127	1.127	1.127	1.127
65	1.127	1.127	1.127	1.127
66	1.127	1.127	1.127	1.127
67	1.127	1.127	1.127	1.127
68	1.127	1.127	1.127	1.127
69	1.127	1.127	1.127	1.127
70	1.127	1.127	1.127	1.127
71	1.127	1.127	1.127	1.127
72	1.127	1.127	1.127	1.127
73	1.127	1.127	1.127	1.127
74	1.127	1.127	1.127	1.127
75	1.127	1.127	1.127	1.127
76	1.127	1.127	1.127	1.127
77	1.127	1.127	1.127	1.127
78	1.127	1.127	1.127	1.127
79	1.127	1.127	1.127	1.127
80	1.127	1.127	1.127	1.127
81	1.127	1.127	1.127	1.127
82	1.127	1.127	1.127	1.127
83	1.127	1.127	1.127	1.127
84	1.127	1.127	1.127	1.127
85	1.127	1.127	1.127	1.127
86	1.127	1.127	1.127	1.127
87	1.127	1.127	1.127	1.127
88	1.127	1.127	1.127	1.127
89	1.127	1.127	1.127	1.127
90	1.127	1.127	1.127	1.127
91	1.127	1.127	1.127	1.127
92	1.127	1.127	1.127	1.127
93	1.127	1.127	1.127	1.127
94	1.127	1.127	1.127	1.127
95	1.127	1.127	1.127	1.127
96	1.127	1.127	1.127	1.127
97	1.127	1.127	1.127	1.127
98	1.127	1.127	1.127	1.127
99	1.127	1.127	1.127	1.127
100	1.127	1.127	1.127	1.127

Figure 3-57. Parameter Trend Chart R2011P1, Ambient Life, I<sub>R</sub>' Group II

[illegible]

Figure 3-58. Parameter Trend Chart R2011P1, Ambient Life,  $V_F$  Group I





PH 4 0200491 ICBO

ICBO VALUES IN MEGAOHMS

78 PARTS

TEST HOURS	AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
0.	0.936	0.225	0.378	1.000
70.	0.949	0.348	0.480	2.303
70.	0.919	0.310	0.378	7.000
100.	0.490	0.360	0.310	1.900
317.	0.501	0.358	0.411	3.000
504.	0.605	0.340	0.510	5.400
672.	0.427	0.327	0.310	3.200
840.	0.909	.347	0.490	0.350
840.	0.949	0.372	0.340	3.400
1004.	0.701	0.570	0.300	2.400
1517.	0.700	0.373	0.470	2.900
1676.	0.633	0.370	0.630	0.350
1649.	0.541	0.300	0.620	0.400
2617.	0.720	0.374	0.570	0.300
2648.	0.772	0.303	0.550	2.000
2709.	0.610	0.367	1.400	2.400
2800.	0.703	0.359	0.940	2.400
3007.	0.445	.614	0.600	2.600
4004.	1.103	0.600	0.720	3.200
4077.	0.862	0.767	0.440	2.400
4954.	0.686	0.600	0.460	3.200
4324.	0.943	0.746	0.170	3.600
5891.	1.001	1.029	0.270	7.200
6402	1.697	0.894	3.200	0.800

TOTAL FAILURES

21

TIME TO FAILURE (HRS)

504  
1000  
1040  
2107  
3000  
3040  
3700  
3900  
3907  
4004  
4004  
4077  
4402

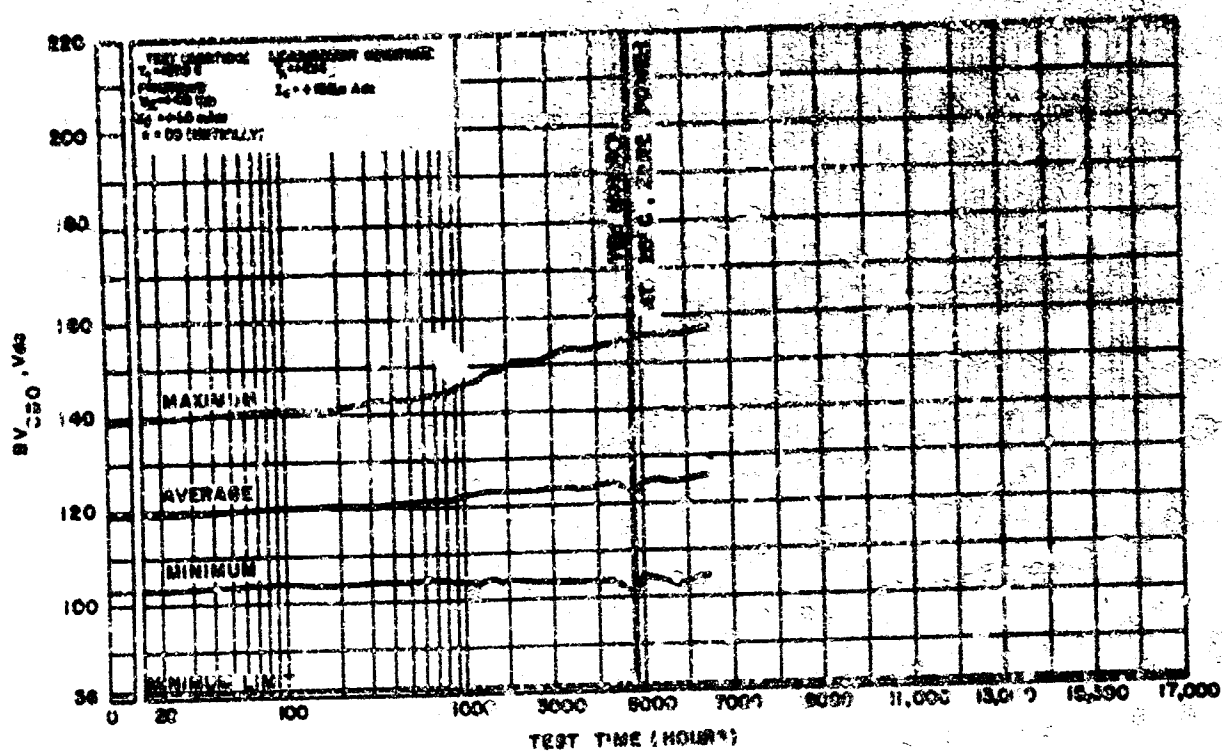
QUANTITY

1  
1  
1  
2  
1  
2  
2  
2  
3  
1  
1  
1

Figure 3-80. Parameter Trend Chart, R2004Pi, Phase IV,  $I_{CBO}$







PH 4 R2004P1 BV CBU

STANDARD VALUES IN VOLTS

TEST HOURS	AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
0	110.000	8.757	100.000	130.100
24	110.200	8.242	100.100	130.200
48	110.111	8.37	100.100	130.300
72	110.070	8.670	100.100	130.400
96	110.590	9.100	100.100	130.500
120	110.590	10.100	100.100	130.600
144	110.590	10.100	100.100	130.700
168	110.590	10.100	100.100	130.800
192	110.590	10.100	100.100	130.900
216	110.590	10.100	100.100	131.000
240	110.590	10.100	100.100	131.100
264	110.590	10.100	100.100	131.200
288	110.590	10.100	100.100	131.300
312	110.590	10.100	100.100	131.400
336	110.590	10.100	100.100	131.500
360	110.590	10.100	100.100	131.600
384	110.590	10.100	100.100	131.700
408	110.590	10.100	100.100	131.800
432	110.590	10.100	100.100	131.900
456	110.590	10.100	100.100	132.000
480	110.590	10.100	100.100	132.100
504	110.590	10.100	100.100	132.200
528	110.590	10.100	100.100	132.300
552	110.590	10.100	100.100	132.400
576	110.590	10.100	100.100	132.500
600	110.590	10.100	100.100	132.600
624	110.590	10.100	100.100	132.700
648	110.590	10.100	100.100	132.800
672	110.590	10.100	100.100	132.900
696	110.590	10.100	100.100	133.000
720	110.590	10.100	100.100	133.100
744	110.590	10.100	100.100	133.200
768	110.590	10.100	100.100	133.300
792	110.590	10.100	100.100	133.400
816	110.590	10.100	100.100	133.500
840	110.590	10.100	100.100	133.600
864	110.590	10.100	100.100	133.700
888	110.590	10.100	100.100	133.800
912	110.590	10.100	100.100	133.900
936	110.590	10.100	100.100	134.000
960	110.590	10.100	100.100	134.100
984	110.590	10.100	100.100	134.200
1008	110.590	10.100	100.100	134.300
1032	110.590	10.100	100.100	134.400
1056	110.590	10.100	100.100	134.500
1080	110.590	10.100	100.100	134.600
1104	110.590	10.100	100.100	134.700
1128	110.590	10.100	100.100	134.800
1152	110.590	10.100	100.100	134.900
1176	110.590	10.100	100.100	135.000
1200	110.590	10.100	100.100	135.100
1224	110.590	10.100	100.100	135.200
1248	110.590	10.100	100.100	135.300
1272	110.590	10.100	100.100	135.400
1296	110.590	10.100	100.100	135.500
1320	110.590	10.100	100.100	135.600
1344	110.590	10.100	100.100	135.700
1368	110.590	10.100	100.100	135.800
1392	110.590	10.100	100.100	135.900
1416	110.590	10.100	100.100	136.000
1440	110.590	10.100	100.100	136.100
1464	110.590	10.100	100.100	136.200
1488	110.590	10.100	100.100	136.300
1512	110.590	10.100	100.100	136.400
1536	110.590	10.100	100.100	136.500
1560	110.590	10.100	100.100	136.600
1584	110.590	10.100	100.100	136.700
1608	110.590	10.100	100.100	136.800
1632	110.590	10.100	100.100	136.900
1656	110.590	10.100	100.100	137.000
1680	110.590	10.100	100.100	137.100

TOTAL FAILURES

21

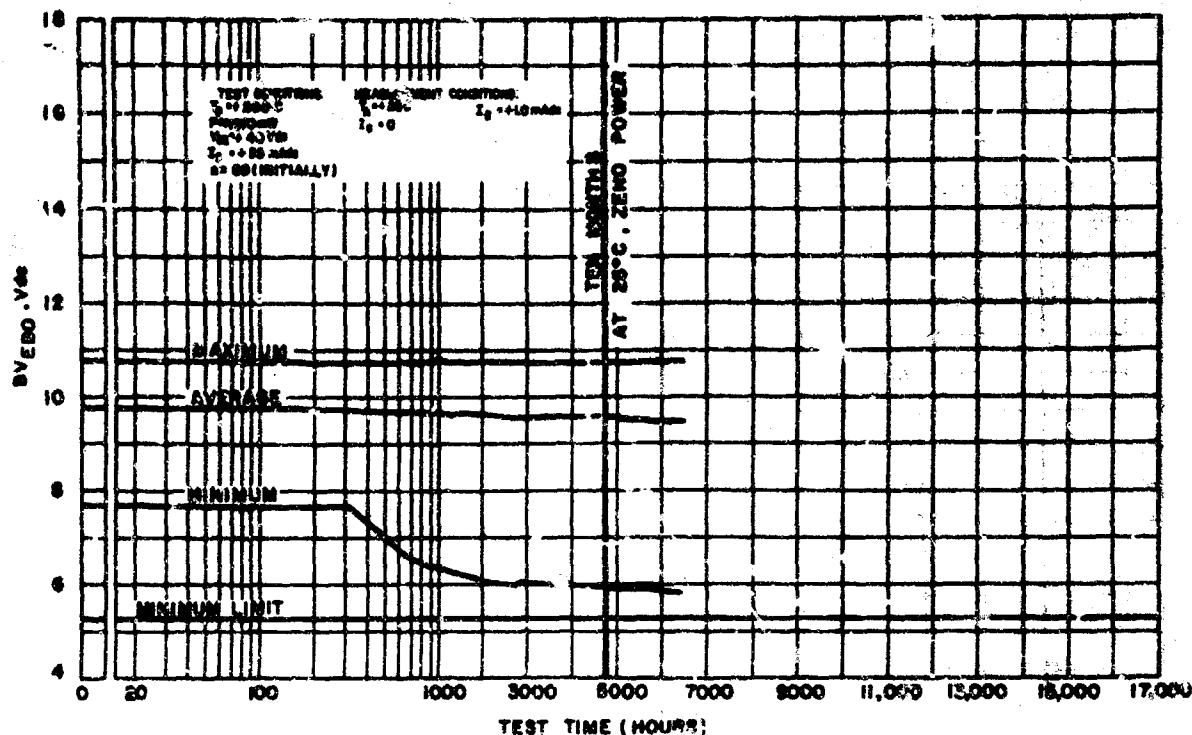
TIME TO FAILURE (HRS)

204  
1000  
1000  
2100  
3000  
4000  
5000  
6000  
7000  
8000  
9000  
10000  
11000  
12000  
13000  
14000  
15000  
16000  
17000

QUANTITY

1  
1  
1  
1  
1  
1  
1  
1  
1  
1  
1  
1  
1  
1  
1  
1  
1  
1  
1

Figure 3-62. Parameter Trend Chart, R2004P1, Phase IV, BV CBU



PH 4 R2004P1 BV\_EBO

BV\_EBO VALUES IN VOLTS

25 PARTS				
TEST HOURS	AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
0.	9.717	0.741	7.639	10.719
24.	9.739	0.746	7.639	10.721
96.	9.720	0.745	7.639	10.713
192.	9.718	0.749	7.639	10.717
337.	9.714	0.777	7.641	10.720
584.	9.689	0.804	7.641	10.720
872.	9.698	0.933	6.944	10.724
948.	9.694	0.912	6.454	10.734
1088.	9.671	0.969	6.359	10.744
1344.	9.639	0.973	6.299	10.711
1512.	9.649	0.982	6.294	10.733
1648.	9.691	0.987	6.176	10.729
1848.	9.677	0.997	6.199	10.711
2017.	9.617	1.027	6.164	10.710
2040.	9.593	1.199	5.999	10.714
2799.	9.564	1.189	6.071	10.709
3203.	9.579	1.129	6.002	10.710
3817.	9.572	1.127	5.999	10.709
4394.	9.581	1.136	5.994	10.719
4877.	9.582	1.133	5.994	10.702
4994.	9.562	1.148	5.910	10.719
5424.	9.510	1.197	5.904	10.714
5521.	9.497	1.267	5.876	10.729
6482.	9.481	1.298	5.874	10.719

TOTAL FAILURES

TIME TO FAILURE (HRS)

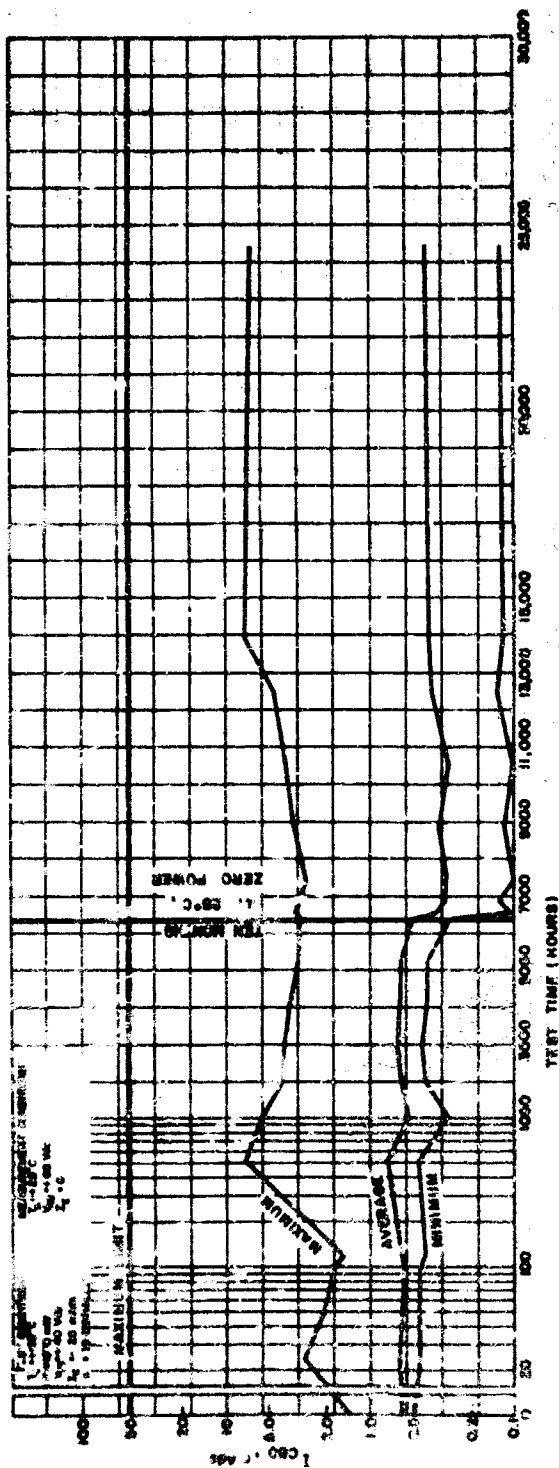
QUANTITY

21

584  
1088  
1648  
2187  
2688  
3040  
3799  
4088  
4994  
5084  
5881  
6482

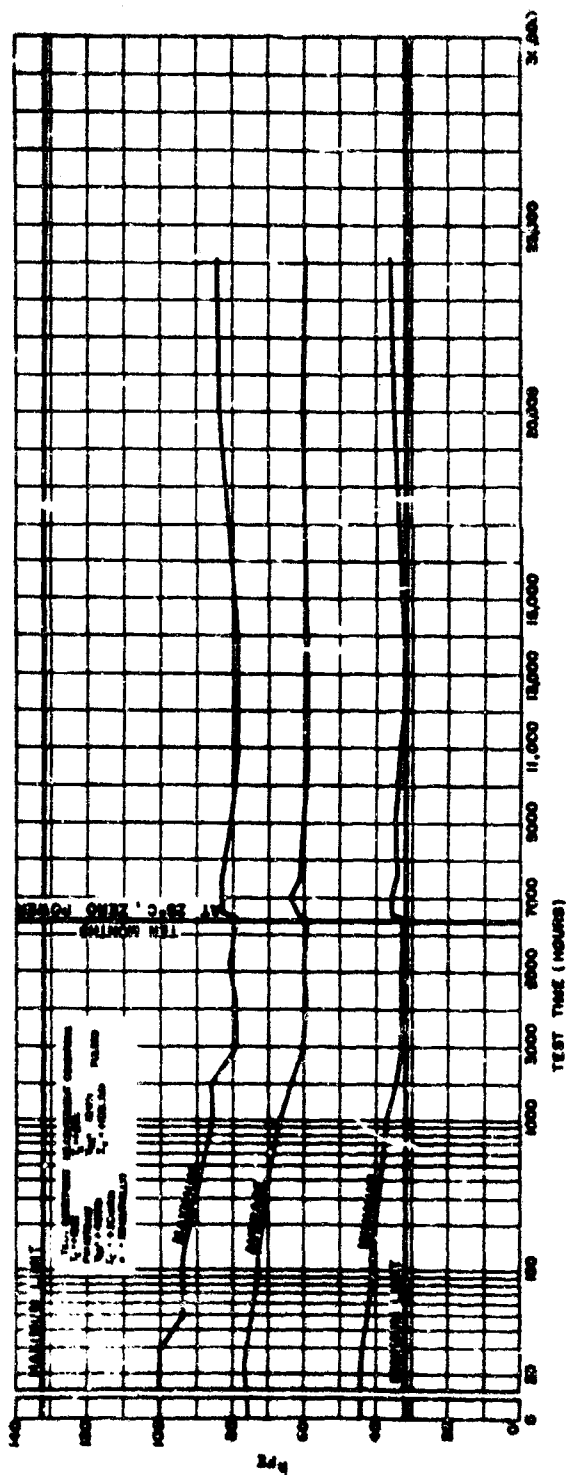
1  
1  
1  
1  
1  
1  
1  
1  
1  
1  
1  
1

Figure 3-63. Parameter Trend Chart, R2004P1, Phase IV, BV\_EBO



TEST TIME	AVERAGE VALUE	57 POINTS (FAILURES NOT INCLUDED)	1000 VALUES IN NEIGHBORHOOD	REMARKS
0	0.00	0.00	0.00	
100	0.00	0.00	0.00	
200	0.00	0.00	0.00	
300	0.00	0.00	0.00	
400	0.00	0.00	0.00	
500	0.00	0.00	0.00	
600	0.00	0.00	0.00	
700	0.00	0.00	0.00	
800	0.00	0.00	0.00	
900	0.00	0.00	0.00	
1000	0.00	0.00	0.00	
1100	0.00	0.00	0.00	
1200	0.00	0.00	0.00	
1300	0.00	0.00	0.00	
1400	0.00	0.00	0.00	
1500	0.00	0.00	0.00	
1600	0.00	0.00	0.00	
1700	0.00	0.00	0.00	
1800	0.00	0.00	0.00	
1900	0.00	0.00	0.00	
2000	0.00	0.00	0.00	
2100	0.00	0.00	0.00	
2200	0.00	0.00	0.00	
2300	0.00	0.00	0.00	
2400	0.00	0.00	0.00	
2500	0.00	0.00	0.00	
2600	0.00	0.00	0.00	
2700	0.00	0.00	0.00	
2800	0.00	0.00	0.00	
2900	0.00	0.00	0.00	
3000	0.00	0.00	0.00	
3100	0.00	0.00	0.00	
3200	0.00	0.00	0.00	
3300	0.00	0.00	0.00	
3400	0.00	0.00	0.00	
3500	0.00	0.00	0.00	
3600	0.00	0.00	0.00	
3700	0.00	0.00	0.00	
3800	0.00	0.00	0.00	
3900	0.00	0.00	0.00	
4000	0.00	0.00	0.00	
4100	0.00	0.00	0.00	
4200	0.00	0.00	0.00	
4300	0.00	0.00	0.00	
4400	0.00	0.00	0.00	
4500	0.00	0.00	0.00	
4600	0.00	0.00	0.00	
4700	0.00	0.00	0.00	
4800	0.00	0.00	0.00	
4900	0.00	0.00	0.00	
5000	0.00	0.00	0.00	
5100	0.00	0.00	0.00	
5200	0.00	0.00	0.00	
5300	0.00	0.00	0.00	
5400	0.00	0.00	0.00	
5500	0.00	0.00	0.00	
5600	0.00	0.00	0.00	
5700	0.00	0.00	0.00	
5800	0.00	0.00	0.00	
5900	0.00	0.00	0.00	
6000	0.00	0.00	0.00	
6100	0.00	0.00	0.00	
6200	0.00	0.00	0.00	
6300	0.00	0.00	0.00	
6400	0.00	0.00	0.00	
6500	0.00	0.00	0.00	
6600	0.00	0.00	0.00	
6700	0.00	0.00	0.00	
6800	0.00	0.00	0.00	
6900	0.00	0.00	0.00	
7000	0.00	0.00	0.00	
7100	0.00	0.00	0.00	
7200	0.00	0.00	0.00	
7300	0.00	0.00	0.00	
7400	0.00	0.00	0.00	
7500	0.00	0.00	0.00	
7600	0.00	0.00	0.00	
7700	0.00	0.00	0.00	
7800	0.00	0.00	0.00	
7900	0.00	0.00	0.00	
8000	0.00	0.00	0.00	
8100	0.00	0.00	0.00	
8200	0.00	0.00	0.00	
8300	0.00	0.00	0.00	
8400	0.00	0.00	0.00	
8500	0.00	0.00	0.00	
8600	0.00	0.00	0.00	
8700	0.00	0.00	0.00	
8800	0.00	0.00	0.00	
8900	0.00	0.00	0.00	
9000	0.00	0.00	0.00	
9100	0.00	0.00	0.00	
9200	0.00	0.00	0.00	
9300	0.00	0.00	0.00	
9400	0.00	0.00	0.00	
9500	0.00	0.00	0.00	
9600	0.00	0.00	0.00	
9700	0.00	0.00	0.00	
9800	0.00	0.00	0.00	
9900	0.00	0.00	0.00	
10000	0.00	0.00	0.00	

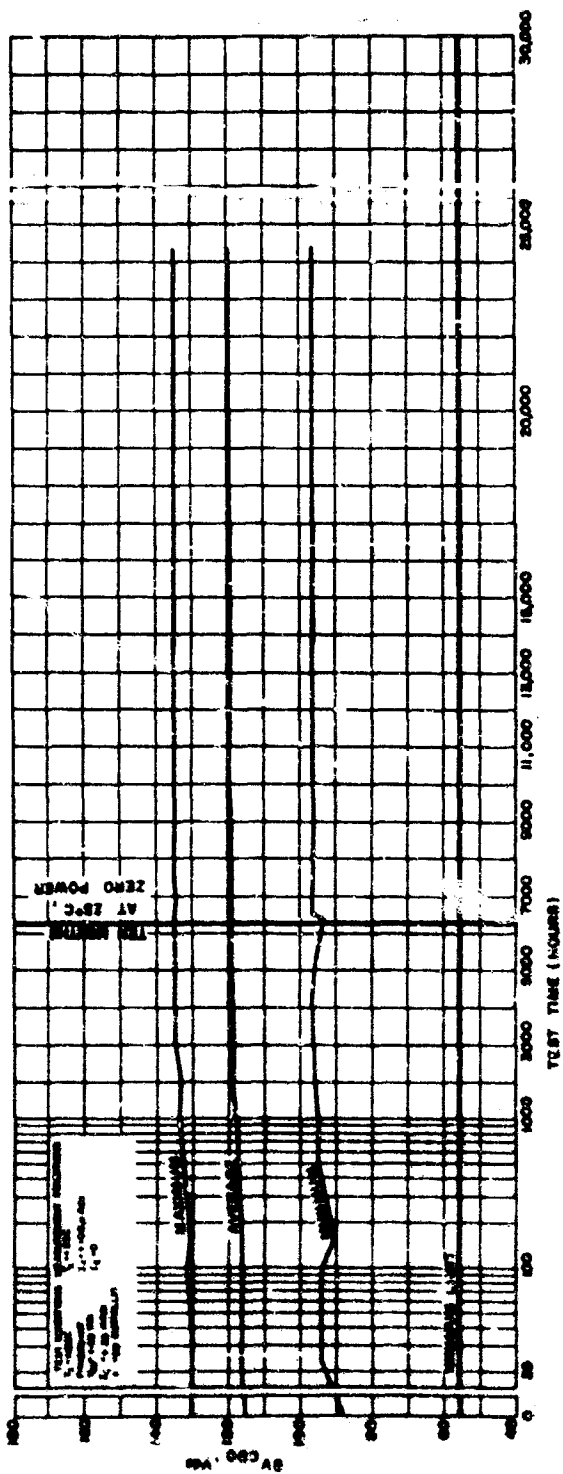
Figure 3-64. Parameter Trend Chart, R2004PI, Phase V, I CBO



TEST RESULTS	27 PARAMETER VALUES AND STANDARD DEVIATIONS	REMARKS	REMARKS
1.00	1.00	1.00	1.00
2.00	2.00	2.00	2.00
3.00	3.00	3.00	3.00
4.00	4.00	4.00	4.00
5.00	5.00	5.00	5.00
6.00	6.00	6.00	6.00
7.00	7.00	7.00	7.00
8.00	8.00	8.00	8.00
9.00	9.00	9.00	9.00
10.00	10.00	10.00	10.00
11.00	11.00	11.00	11.00
12.00	12.00	12.00	12.00
13.00	13.00	13.00	13.00
14.00	14.00	14.00	14.00
15.00	15.00	15.00	15.00
16.00	16.00	16.00	16.00
17.00	17.00	17.00	17.00
18.00	18.00	18.00	18.00
19.00	19.00	19.00	19.00
20.00	20.00	20.00	20.00
21.00	21.00	21.00	21.00
22.00	22.00	22.00	22.00
23.00	23.00	23.00	23.00
24.00	24.00	24.00	24.00
25.00	25.00	25.00	25.00
26.00	26.00	26.00	26.00
27.00	27.00	27.00	27.00

TEST RESULTS	27 PARAMETER VALUES AND STANDARD DEVIATIONS	REMARKS	REMARKS
1.00	1.00	1.00	1.00
2.00	2.00	2.00	2.00
3.00	3.00	3.00	3.00
4.00	4.00	4.00	4.00
5.00	5.00	5.00	5.00
6.00	6.00	6.00	6.00
7.00	7.00	7.00	7.00
8.00	8.00	8.00	8.00
9.00	9.00	9.00	9.00
10.00	10.00	10.00	10.00
11.00	11.00	11.00	11.00
12.00	12.00	12.00	12.00
13.00	13.00	13.00	13.00
14.00	14.00	14.00	14.00
15.00	15.00	15.00	15.00
16.00	16.00	16.00	16.00
17.00	17.00	17.00	17.00
18.00	18.00	18.00	18.00
19.00	19.00	19.00	19.00
20.00	20.00	20.00	20.00
21.00	21.00	21.00	21.00
22.00	22.00	22.00	22.00
23.00	23.00	23.00	23.00
24.00	24.00	24.00	24.00
25.00	25.00	25.00	25.00
26.00	26.00	26.00	26.00
27.00	27.00	27.00	27.00

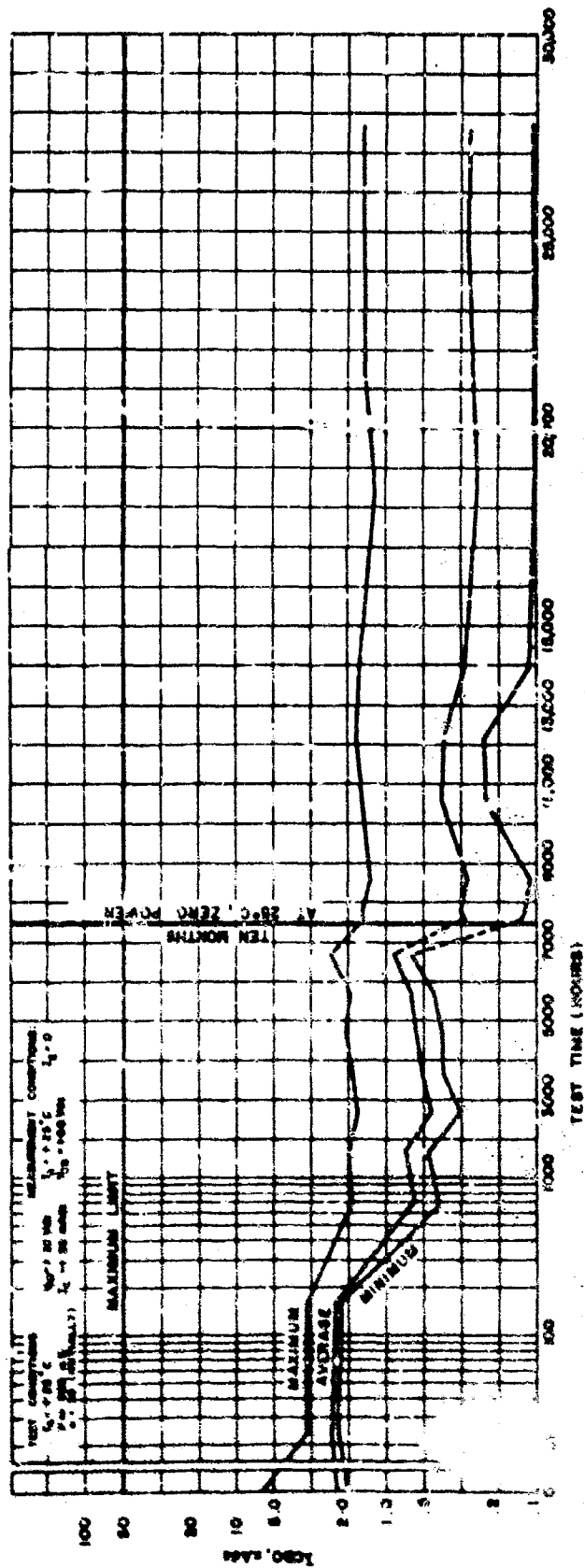
Figure 3-65. Parameter Trend Chart, R2004P1, Phase V, hFE



PH 5 SUMMARY SHEET		CYCLE VALUES IN UNITS		TIME TO FAILURE (HRS)		QUALITY
TEST NO.	TEST VALUE	ST PARTS (FALLURES) USE DECIMALS	STANDARD DEVIATION	TIME TO FAILURE (HRS)	TIME TO FAILURE (HRS)	
1	113.47	0.079	1.00	100	100	100
2	113.48	0.104	1.00	100	100	100
3	113.49	0.104	1.00	100	100	100
4	113.50	0.104	1.00	100	100	100
5	113.51	0.104	1.00	100	100	100
6	113.52	0.104	1.00	100	100	100
7	113.53	0.104	1.00	100	100	100
8	113.54	0.104	1.00	100	100	100
9	113.55	0.104	1.00	100	100	100
10	113.56	0.104	1.00	100	100	100
11	113.57	0.104	1.00	100	100	100
12	113.58	0.104	1.00	100	100	100
13	113.59	0.104	1.00	100	100	100
14	113.60	0.104	1.00	100	100	100
15	113.61	0.104	1.00	100	100	100
16	113.62	0.104	1.00	100	100	100
17	113.63	0.104	1.00	100	100	100
18	113.64	0.104	1.00	100	100	100
19	113.65	0.104	1.00	100	100	100
20	113.66	0.104	1.00	100	100	100
21	113.67	0.104	1.00	100	100	100
22	113.68	0.104	1.00	100	100	100
23	113.69	0.104	1.00	100	100	100
24	113.70	0.104	1.00	100	100	100
25	113.71	0.104	1.00	100	100	100
26	113.72	0.104	1.00	100	100	100
27	113.73	0.104	1.00	100	100	100
28	113.74	0.104	1.00	100	100	100
29	113.75	0.104	1.00	100	100	100
30	113.76	0.104	1.00	100	100	100
31	113.77	0.104	1.00	100	100	100
32	113.78	0.104	1.00	100	100	100
33	113.79	0.104	1.00	100	100	100
34	113.80	0.104	1.00	100	100	100
35	113.81	0.104	1.00	100	100	100
36	113.82	0.104	1.00	100	100	100
37	113.83	0.104	1.00	100	100	100
38	113.84	0.104	1.00	100	100	100
39	113.85	0.104	1.00	100	100	100
40	113.86	0.104	1.00	100	100	100
41	113.87	0.104	1.00	100	100	100
42	113.88	0.104	1.00	100	100	100
43	113.89	0.104	1.00	100	100	100
44	113.90	0.104	1.00	100	100	100
45	113.91	0.104	1.00	100	100	100
46	113.92	0.104	1.00	100	100	100
47	113.93	0.104	1.00	100	100	100
48	113.94	0.104	1.00	100	100	100
49	113.95	0.104	1.00	100	100	100
50	113.96	0.104	1.00	100	100	100
51	113.97	0.104	1.00	100	100	100
52	113.98	0.104	1.00	100	100	100
53	113.99	0.104	1.00	100	100	100
54	114.00	0.104	1.00	100	100	100
55	114.01	0.104	1.00	100	100	100
56	114.02	0.104	1.00	100	100	100
57	114.03	0.104	1.00	100	100	100
58	114.04	0.104	1.00	100	100	100
59	114.05	0.104	1.00	100	100	100
60	114.06	0.104	1.00	100	100	100
61	114.07	0.104	1.00	100	100	100
62	114.08	0.104	1.00	100	100	100
63	114.09	0.104	1.00	100	100	100
64	114.10	0.104	1.00	100	100	100
65	114.11	0.104	1.00	100	100	100
66	114.12	0.104	1.00	100	100	100
67	114.13	0.104	1.00	100	100	100
68	114.14	0.104	1.00	100	100	100
69	114.15	0.104	1.00	100	100	100
70	114.16	0.104	1.00	100	100	100
71	114.17	0.104	1.00	100	100	100
72	114.18	0.104	1.00	100	100	100
73	114.19	0.104	1.00	100	100	100
74	114.20	0.104	1.00	100	100	100
75	114.21	0.104	1.00	100	100	100
76	114.22	0.104	1.00	100	100	100
77	114.23	0.104	1.00	100	100	100
78	114.24	0.104	1.00	100	100	100
79	114.25	0.104	1.00	100	100	100
80	114.26	0.104	1.00	100	100	100
81	114.27	0.104	1.00	100	100	100
82	114.28	0.104	1.00	100	100	100
83	114.29	0.104	1.00	100	100	100
84	114.30	0.104	1.00	100	100	100
85	114.31	0.104	1.00	100	100	100
86	114.32	0.104	1.00	100	100	100
87	114.33	0.104	1.00	100	100	100
88	114.34	0.104	1.00	100	100	100
89	114.35	0.104	1.00	100	100	100
90	114.36	0.104	1.00	100	100	100
91	114.37	0.104	1.00	100	100	100
92	114.38	0.104	1.00	100	100	100
93	114.39	0.104	1.00	100	100	100
94	114.40	0.104	1.00	100	100	100
95	114.41	0.104	1.00	100	100	100
96	114.42	0.104	1.00	100	100	100
97	114.43	0.104	1.00	100	100	100
98	114.44	0.104	1.00	100	100	100
99	114.45	0.104	1.00	100	100	100
100	114.46	0.104	1.00	100	100	100

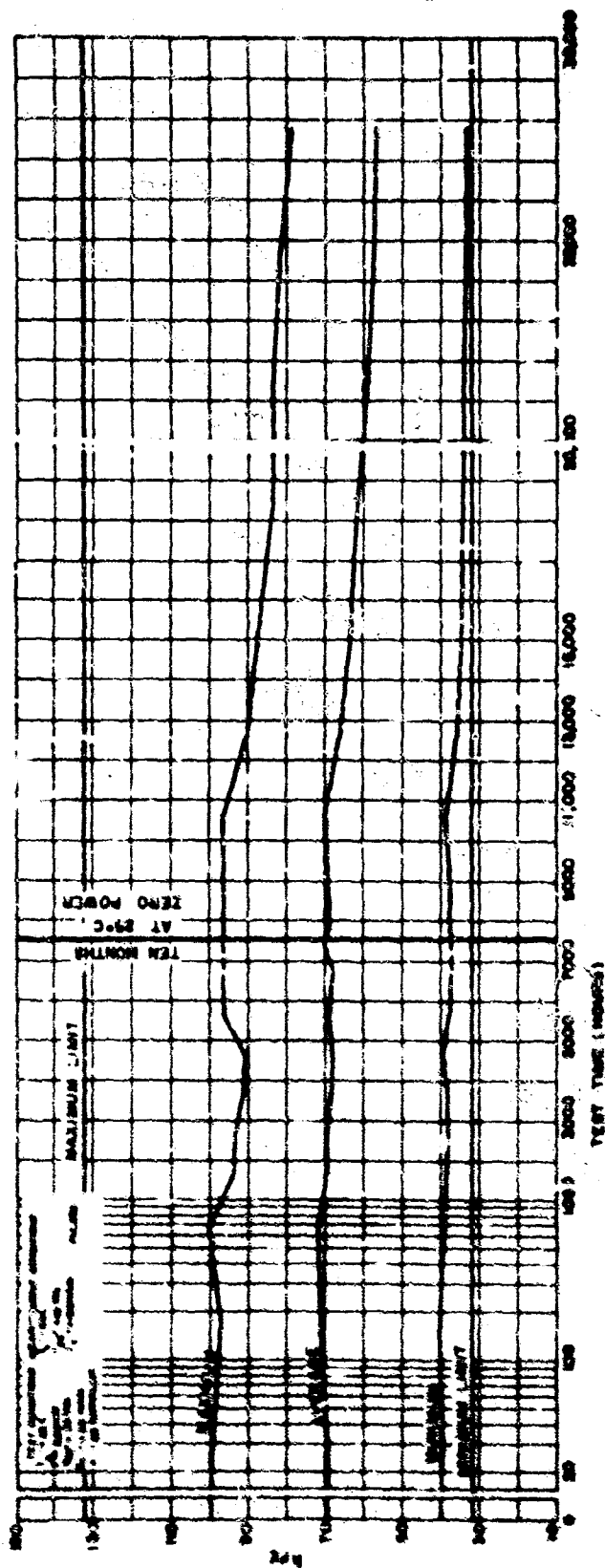
Figure 3-66. Parameter Trend Chart, R2004.P1, Phase V, EV CBO





TEST NUMBER	ICB VALUE	MAXIMUM VALUE	MINIMUM VALUE	AVERAGE VALUE
1	2.200	2.200	2.200	2.200
2	2.200	2.200	2.200	2.200
3	2.200	2.200	2.200	2.200
4	2.200	2.200	2.200	2.200
5	2.200	2.200	2.200	2.200
6	2.200	2.200	2.200	2.200
7	2.200	2.200	2.200	2.200
8	2.200	2.200	2.200	2.200
9	2.200	2.200	2.200	2.200
10	2.200	2.200	2.200	2.200
11	2.200	2.200	2.200	2.200
12	2.200	2.200	2.200	2.200
13	2.200	2.200	2.200	2.200
14	2.200	2.200	2.200	2.200
15	2.200	2.200	2.200	2.200
16	2.200	2.200	2.200	2.200
17	2.200	2.200	2.200	2.200
18	2.200	2.200	2.200	2.200
19	2.200	2.200	2.200	2.200
20	2.200	2.200	2.200	2.200
21	2.200	2.200	2.200	2.200
22	2.200	2.200	2.200	2.200
23	2.200	2.200	2.200	2.200
24	2.200	2.200	2.200	2.200
25	2.200	2.200	2.200	2.200
26	2.200	2.200	2.200	2.200
27	2.200	2.200	2.200	2.200
28	2.200	2.200	2.200	2.200
29	2.200	2.200	2.200	2.200
30	2.200	2.200	2.200	2.200

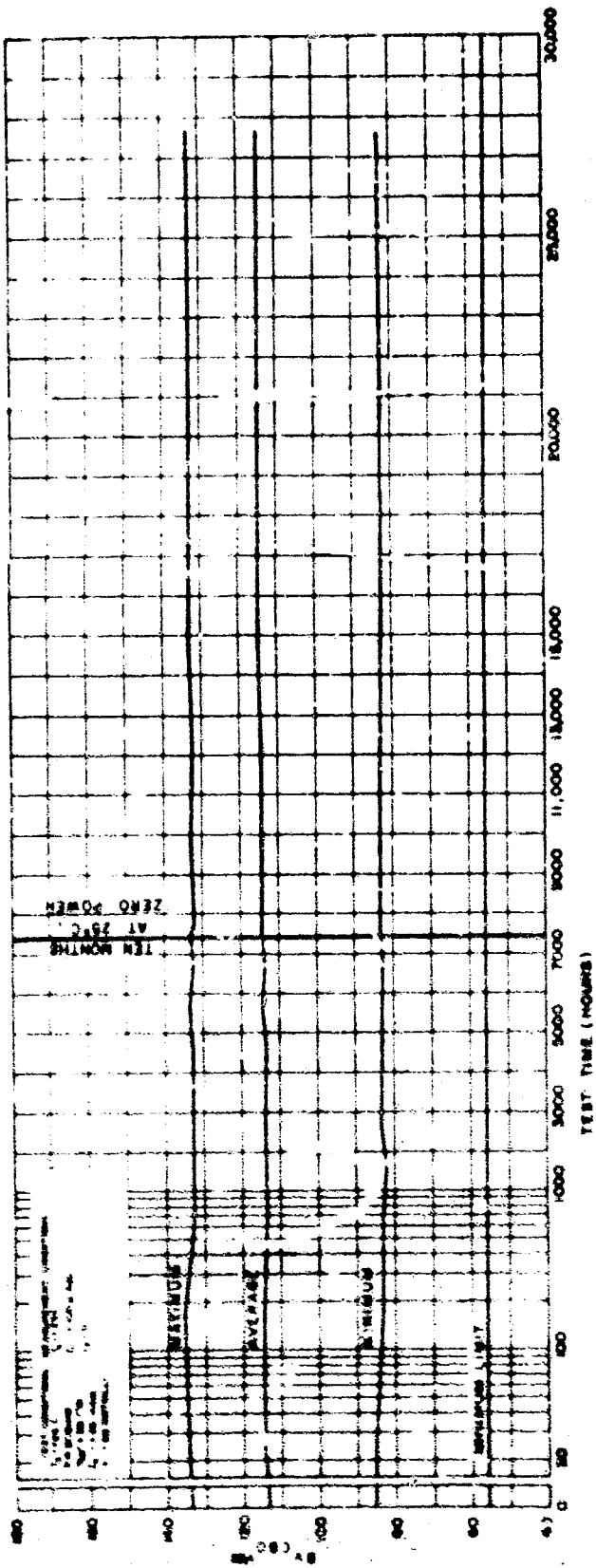
Figure 3-68. Parameter Trend Chart, R2004P, Ambient Air, I CBO



TEST TIME	MAXIMUM VALUE	AVERAGE VALUE	MINIMUM VALUE	TEST TIME	MAXIMUM VALUE	AVERAGE VALUE	MINIMUM VALUE
0	10.000	10.000	10.000	10000	10.000	10.000	10.000
1000	10.000	10.000	10.000	11000	10.000	10.000	10.000
2000	10.000	10.000	10.000	12000	10.000	10.000	10.000
3000	10.000	10.000	10.000	13000	10.000	10.000	10.000
4000	10.000	10.000	10.000	14000	10.000	10.000	10.000
5000	10.000	10.000	10.000	15000	10.000	10.000	10.000
6000	10.000	10.000	10.000	16000	10.000	10.000	10.000
7000	10.000	10.000	10.000	17000	10.000	10.000	10.000
8000	10.000	10.000	10.000	18000	10.000	10.000	10.000
9000	10.000	10.000	10.000	19000	10.000	10.000	10.000
10000	10.000	10.000	10.000	20000	10.000	10.000	10.000

Figure 3-69. Parameter Trend Chart, R2004P1, Ambient Life, h, FZ





TEST NUMBER	NO. OF TESTS	AVG. VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
1	1	172.371	0.000	95.848	228.000
2	1	110.100	0.000	95.848	126.000
3	1	110.100	0.000	95.848	126.000
4	1	110.100	0.000	95.848	126.000
5	1	110.100	0.000	95.848	126.000
6	1	110.100	0.000	95.848	126.000
7	1	110.100	0.000	95.848	126.000
8	1	110.100	0.000	95.848	126.000
9	1	110.100	0.000	95.848	126.000
10	1	110.100	0.000	95.848	126.000
11	1	110.100	0.000	95.848	126.000
12	1	110.100	0.000	95.848	126.000
13	1	110.100	0.000	95.848	126.000
14	1	110.100	0.000	95.848	126.000
15	1	110.100	0.000	95.848	126.000
16	1	110.100	0.000	95.848	126.000
17	1	110.100	0.000	95.848	126.000
18	1	110.100	0.000	95.848	126.000
19	1	110.100	0.000	95.848	126.000
20	1	110.100	0.000	95.848	126.000
21	1	110.100	0.000	95.848	126.000
22	1	110.100	0.000	95.848	126.000
23	1	110.100	0.000	95.848	126.000
24	1	110.100	0.000	95.848	126.000
25	1	110.100	0.000	95.848	126.000
26	1	110.100	0.000	95.848	126.000
27	1	110.100	0.000	95.848	126.000
28	1	110.100	0.000	95.848	126.000
29	1	110.100	0.000	95.848	126.000
30	1	110.100	0.000	95.848	126.000

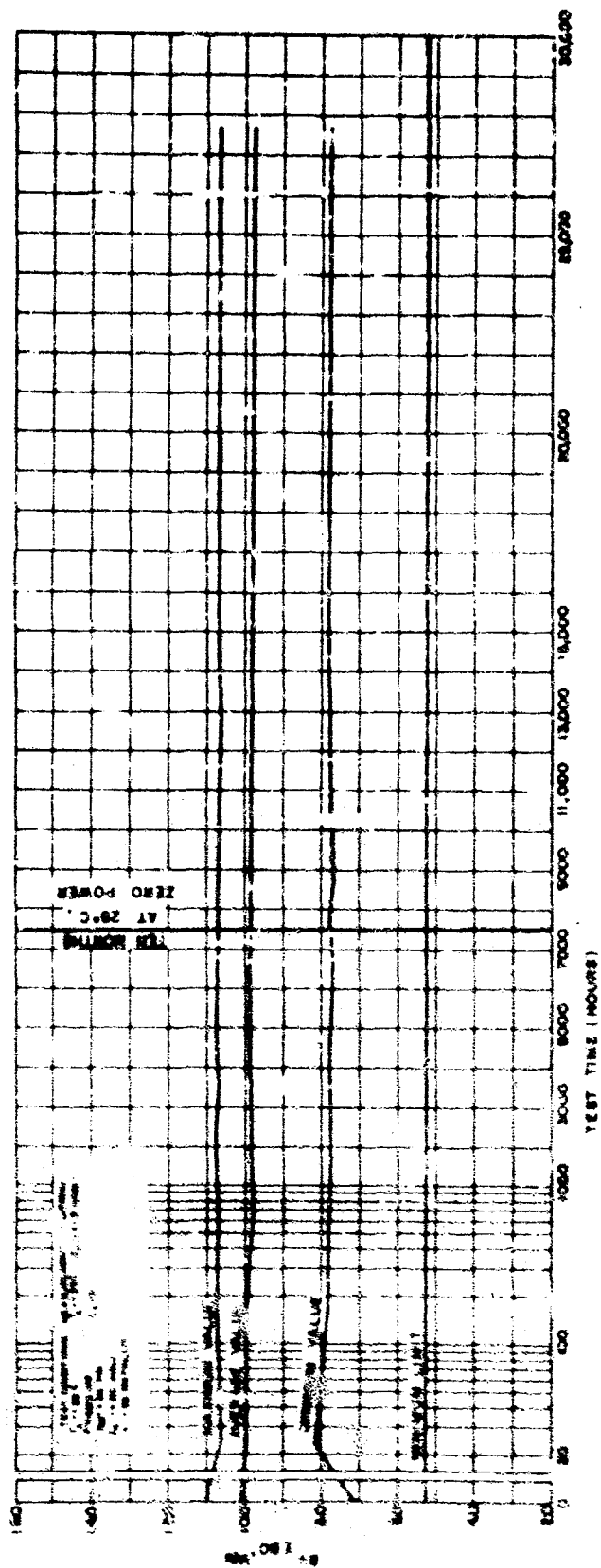
QUANTITY

TIME TO FAILURE (HRS)

TOTAL FAILURE

21.00

Figure 3-70. Parameter Trend Chart, R2004P1, Ambient Life, BV CBO



TEST SPECIES	IS PACE (VALUES NOT INCHES)	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
0	14.000	0.100	13.900	14.100
1	14.000	0.100	13.900	14.100
2	14.000	0.100	13.900	14.100
3	14.000	0.100	13.900	14.100
4	14.000	0.100	13.900	14.100
5	14.000	0.100	13.900	14.100
6	14.000	0.100	13.900	14.100
7	14.000	0.100	13.900	14.100
8	14.000	0.100	13.900	14.100
9	14.000	0.100	13.900	14.100
10	14.000	0.100	13.900	14.100
11	14.000	0.100	13.900	14.100
12	14.000	0.100	13.900	14.100
13	14.000	0.100	13.900	14.100
14	14.000	0.100	13.900	14.100
15	14.000	0.100	13.900	14.100
16	14.000	0.100	13.900	14.100
17	14.000	0.100	13.900	14.100
18	14.000	0.100	13.900	14.100
19	14.000	0.100	13.900	14.100
20	14.000	0.100	13.900	14.100
21	14.000	0.100	13.900	14.100
22	14.000	0.100	13.900	14.100
23	14.000	0.100	13.900	14.100
24	14.000	0.100	13.900	14.100
25	14.000	0.100	13.900	14.100
26	14.000	0.100	13.900	14.100
27	14.000	0.100	13.900	14.100
28	14.000	0.100	13.900	14.100
29	14.000	0.100	13.900	14.100
30	14.000	0.100	13.900	14.100
31	14.000	0.100	13.900	14.100
32	14.000	0.100	13.900	14.100
33	14.000	0.100	13.900	14.100
34	14.000	0.100	13.900	14.100
35	14.000	0.100	13.900	14.100
36	14.000	0.100	13.900	14.100
37	14.000	0.100	13.900	14.100
38	14.000	0.100	13.900	14.100
39	14.000	0.100	13.900	14.100
40	14.000	0.100	13.900	14.100
41	14.000	0.100	13.900	14.100
42	14.000	0.100	13.900	14.100
43	14.000	0.100	13.900	14.100
44	14.000	0.100	13.900	14.100
45	14.000	0.100	13.900	14.100
46	14.000	0.100	13.900	14.100
47	14.000	0.100	13.900	14.100
48	14.000	0.100	13.900	14.100
49	14.000	0.100	13.900	14.100
50	14.000	0.100	13.900	14.100

TOTAL FAILURES: 1  
TIME TO FAILURE (HRS): 15,000  
D. 400

Figure 3-71. Parameter Trend Chart, R2004P1, Ambient Life, BY EBC

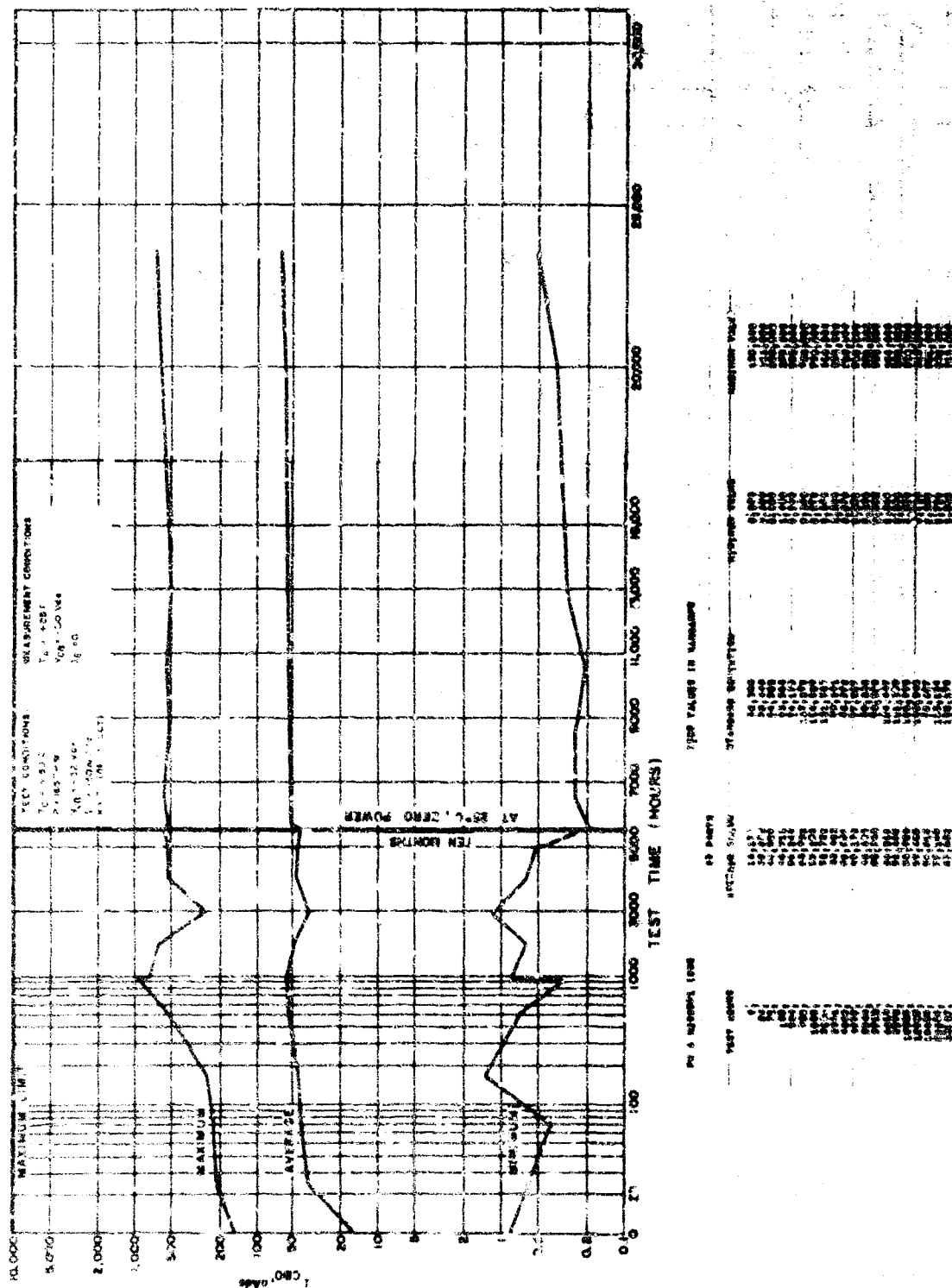


Figure 3-72. Parameter Trend Chart, R2005F1, Phase VI, I<sub>CBO</sub>



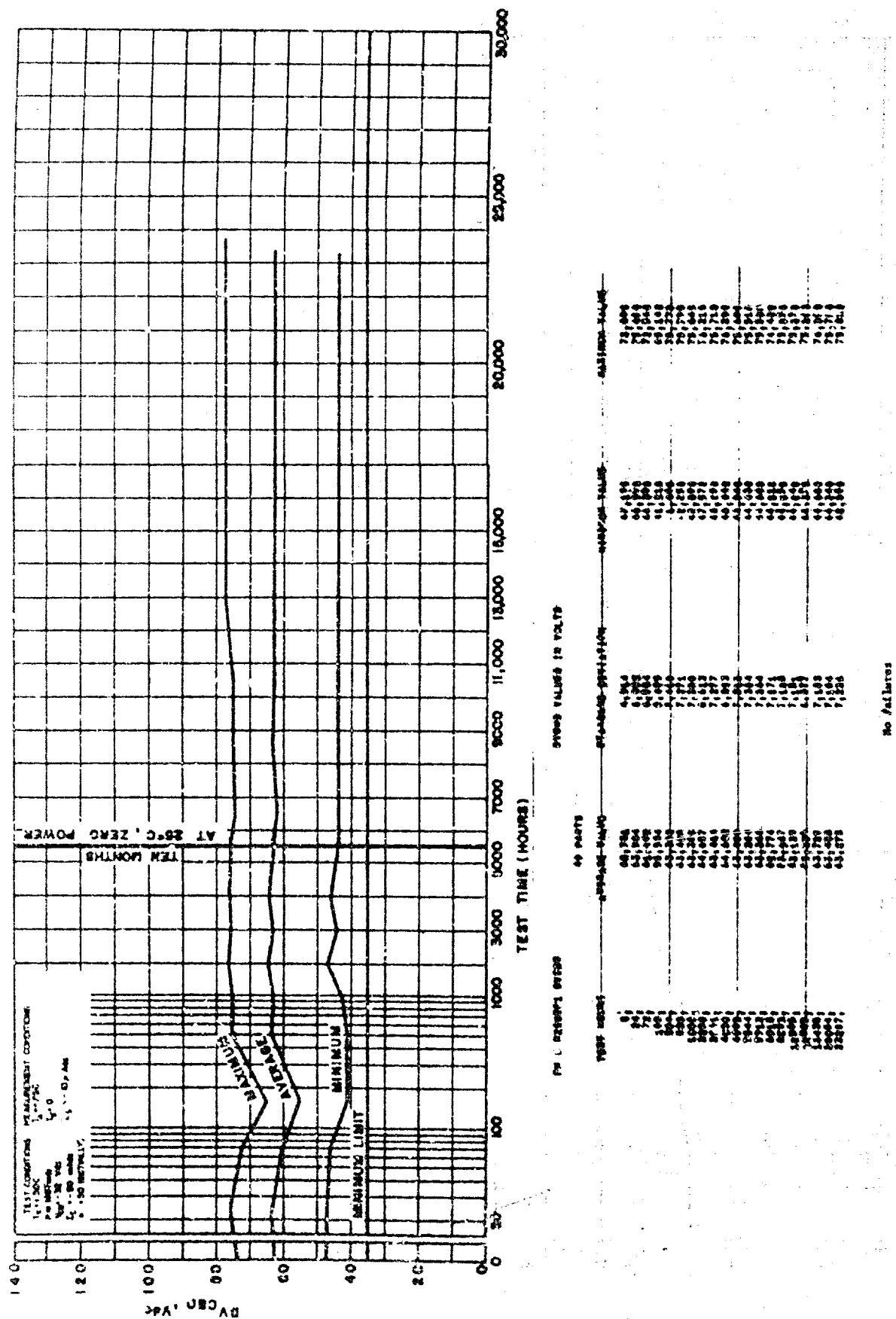
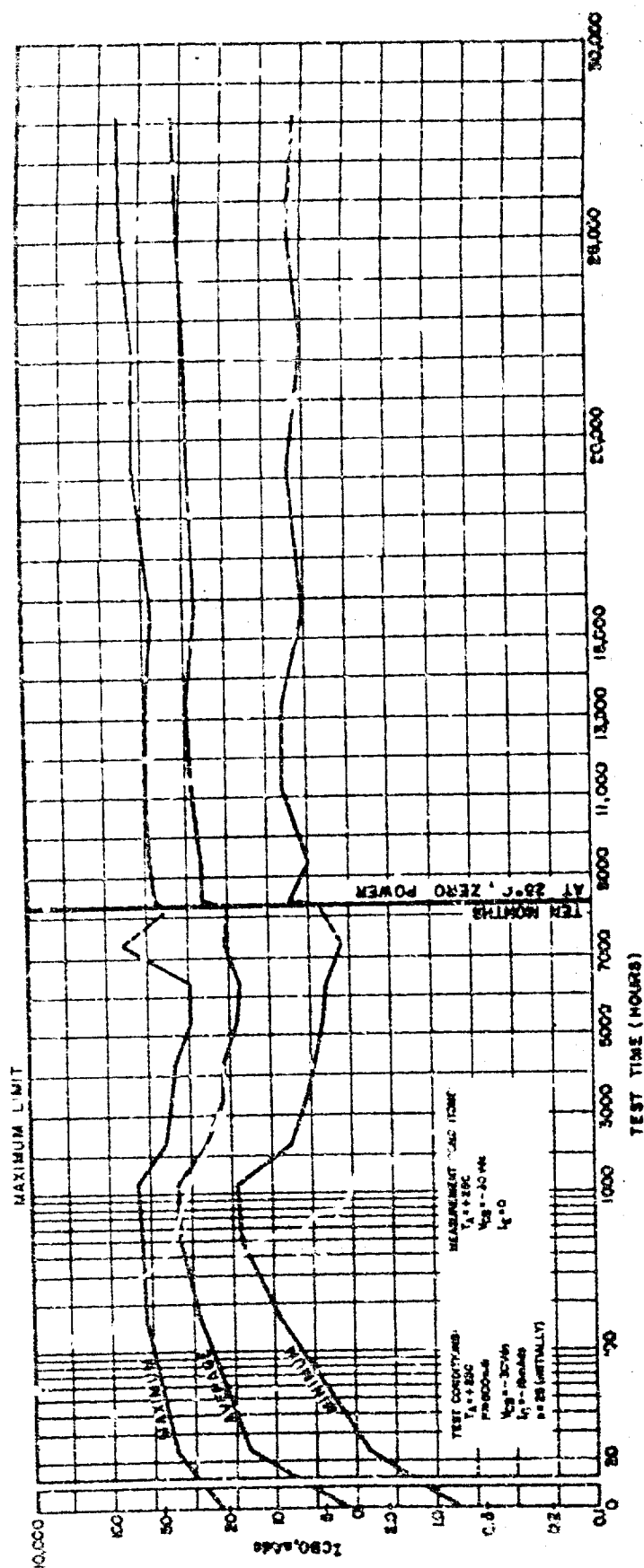


Figure 3-74. Parameter Trend Chart, R2005P1, Phase VI, BV CPO





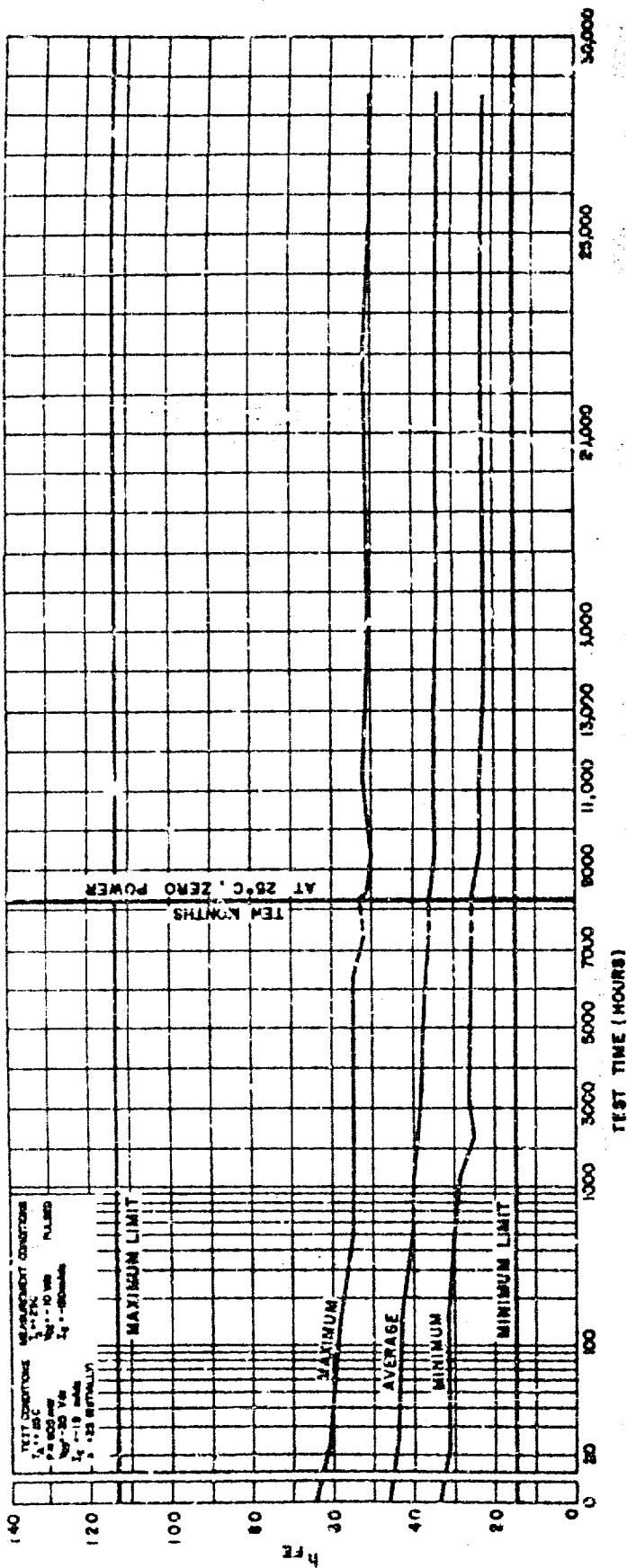
AMB L 420-001 (20)

ICB0 VALUES IN HOURS

TEST HOURS	PE RATIO	AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
0	3.377	15.744	7.352	8.328	21.808
20	3.377	15.744	7.352	8.328	21.808
40	3.377	15.744	7.352	8.328	21.808
60	3.377	15.744	7.352	8.328	21.808
80	3.377	15.744	7.352	8.328	21.808
100	3.377	15.744	7.352	8.328	21.808
120	3.377	15.744	7.352	8.328	21.808
140	3.377	15.744	7.352	8.328	21.808
160	3.377	15.744	7.352	8.328	21.808
180	3.377	15.744	7.352	8.328	21.808
200	3.377	15.744	7.352	8.328	21.808
220	3.377	15.744	7.352	8.328	21.808
240	3.377	15.744	7.352	8.328	21.808
260	3.377	15.744	7.352	8.328	21.808
280	3.377	15.744	7.352	8.328	21.808
300	3.377	15.744	7.352	8.328	21.808
320	3.377	15.744	7.352	8.328	21.808
340	3.377	15.744	7.352	8.328	21.808
360	3.377	15.744	7.352	8.328	21.808
380	3.377	15.744	7.352	8.328	21.808
400	3.377	15.744	7.352	8.328	21.808
420	3.377	15.744	7.352	8.328	21.808
440	3.377	15.744	7.352	8.328	21.808
460	3.377	15.744	7.352	8.328	21.808
480	3.377	15.744	7.352	8.328	21.808
500	3.377	15.744	7.352	8.328	21.808
520	3.377	15.744	7.352	8.328	21.808
540	3.377	15.744	7.352	8.328	21.808
560	3.377	15.744	7.352	8.328	21.808
580	3.377	15.744	7.352	8.328	21.808
600	3.377	15.744	7.352	8.328	21.808
620	3.377	15.744	7.352	8.328	21.808
640	3.377	15.744	7.352	8.328	21.808
660	3.377	15.744	7.352	8.328	21.808
680	3.377	15.744	7.352	8.328	21.808
700	3.377	15.744	7.352	8.328	21.808
720	3.377	15.744	7.352	8.328	21.808
740	3.377	15.744	7.352	8.328	21.808
760	3.377	15.744	7.352	8.328	21.808
780	3.377	15.744	7.352	8.328	21.808
800	3.377	15.744	7.352	8.328	21.808
820	3.377	15.744	7.352	8.328	21.808
840	3.377	15.744	7.352	8.328	21.808
860	3.377	15.744	7.352	8.328	21.808
880	3.377	15.744	7.352	8.328	21.808
900	3.377	15.744	7.352	8.328	21.808
920	3.377	15.744	7.352	8.328	21.808
940	3.377	15.744	7.352	8.328	21.808
960	3.377	15.744	7.352	8.328	21.808
980	3.377	15.744	7.352	8.328	21.808
1000	3.377	15.744	7.352	8.328	21.808

NO Failures

Figure 3-78. Parameter Trend Chart, E2005P1, Ambient  $T_A$ ,  $I_{CB0}$

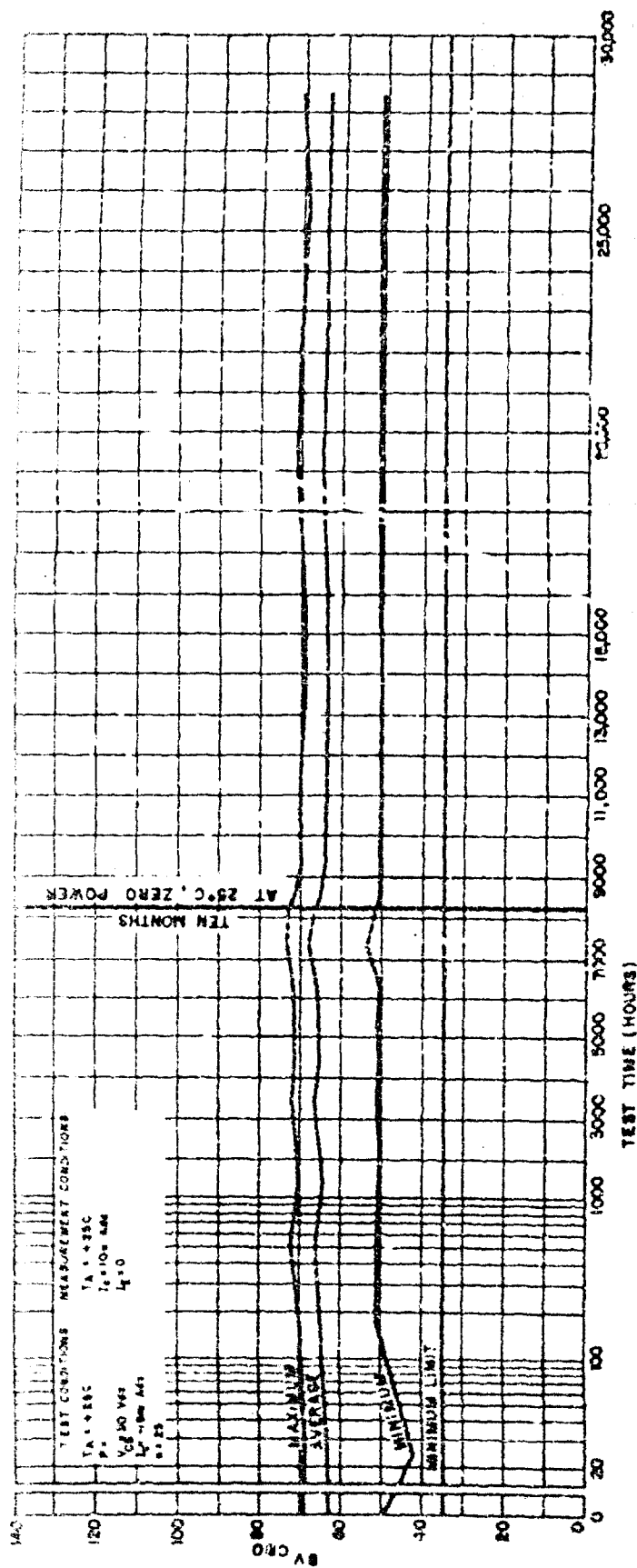


TEST NUMBER	AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
1	43.844	8.507	34.100	43.203
2	44.700	8.411	31.400	41.292
3	42.849	7.840	31.000	34.500
4	48.581	7.833	38.000	55.000
5	48.373	7.406	28.000	55.000
6	38.808	8.401	25.500	49.000
7	38.898	7.806	28.500	51.000
8	38.610	7.594	26.330	49.000
9	37.642	7.973	26.100	55.000
10	37.358	7.576	25.900	55.000
11	36.607	8.408	25.900	51.000
12	36.794	7.403	25.900	51.000
13	36.822	7.820	25.200	51.000
14	35.956	7.185	24.200	48.000
15	35.750	7.438	24.200	48.000
16	35.227	7.394	21.000	41.000
17	34.997	7.176	21.350	41.000
18	34.857	7.414	25.700	51.000
19	34.371	7.473	27.200	51.000
20	33.504	7.306	21.000	51.000
21	31.541	7.406	21.000	51.000

No Failure

Figure 3-77. Parameter Trend Chart, R2005P1, Ambient Life, hFE



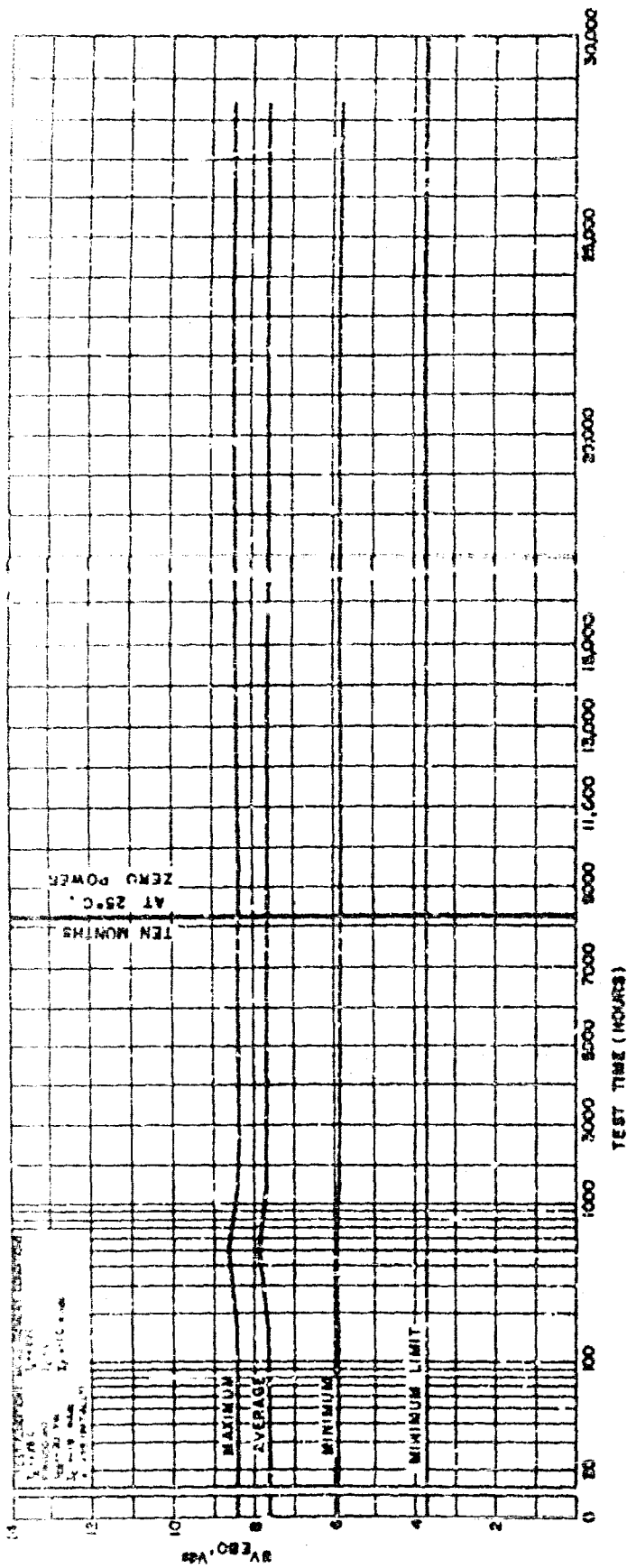


AVG CBO VALUES IN VOLTS

TEST MONTHS	74 PARTS AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
1	63.874	4.164	49.848	69.766
2	63.876	4.046	49.847	69.766
3	64.095	5.136	51.096	70.856
4	64.256	5.194	51.096	70.856
5	64.377	5.271	50.828	72.488
6	64.382	5.277	51.186	72.488
7	64.827	6.214	51.186	72.488
8	65.079	6.315	51.186	72.488
9	65.954	6.313	51.186	72.488
10	66.376	6.334	51.186	72.488
11	66.369	4.932	50.846	73.846
12	66.442	5.363	51.718	75.048
13	66.522	5.215	51.348	75.048
14	66.717	5.683	51.890	76.406
15	66.942	5.672	51.123	75.958
16	66.468	4.877	51.048	75.958
17	66.121	4.233	51.028	75.958
18	66.173	4.144	51.178	75.958
19	66.173	4.144	51.178	75.958
20	66.173	4.144	51.178	75.958
21	66.173	4.144	51.178	75.958
22	66.173	4.144	51.178	75.958
23	66.173	4.144	51.178	75.958
24	66.173	4.144	51.178	75.958
25	66.173	4.144	51.178	75.958
26	66.173	4.144	51.178	75.958
27	66.173	4.144	51.178	75.958
28	66.173	4.144	51.178	75.958
29	66.173	4.144	51.178	75.958
30	66.173	4.144	51.178	75.958

No Failures

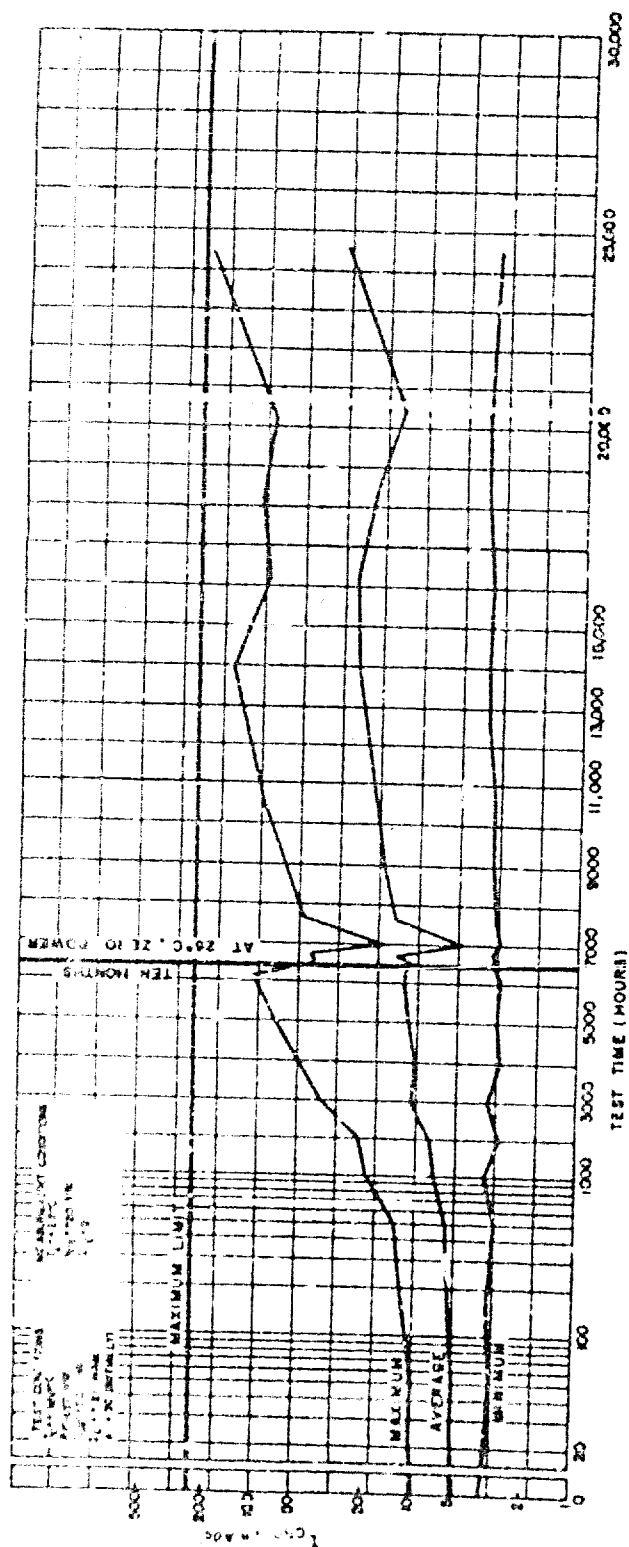
Figure 3-78. Parameter Trend Chart, R2005P1, Ambient Life, BV CBO



TEST HOURS	24 GAUGE AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
24	7.448	0.024	7.388	7.513
100	7.551	0.028	7.471	7.634
200	7.654	0.032	7.569	7.739
500	7.757	0.036	7.673	7.840
1000	7.860	0.040	7.779	7.941
2000	7.963	0.044	7.883	8.045
5000	8.066	0.048	7.987	8.148
10000	8.169	0.052	8.091	8.251
20000	8.272	0.056	8.195	8.354
30000	8.375	0.060	8.299	8.457
40000	8.478	0.064	8.403	8.560
50000	8.581	0.068	8.507	8.663
60000	8.684	0.072	8.611	8.766
70000	8.787	0.076	8.715	8.869
80000	8.890	0.080	8.819	8.972
90000	8.993	0.084	8.923	9.075
100000	9.096	0.088	9.027	9.178
110000	9.199	0.092	9.131	9.281
120000	9.302	0.096	9.235	9.384
130000	9.405	0.100	9.339	9.487
140000	9.508	0.104	9.443	9.590
150000	9.611	0.108	9.547	9.693
160000	9.714	0.112	9.651	9.796
170000	9.817	0.116	9.755	9.899
180000	9.920	0.120	9.859	10.002
190000	10.023	0.124	9.963	10.105
200000	10.126	0.128	10.067	10.208
210000	10.229	0.132	10.171	10.311
220000	10.332	0.136	10.275	10.414
230000	10.435	0.140	10.379	10.517
240000	10.538	0.144	10.483	10.620
250000	10.641	0.148	10.587	10.723
260000	10.744	0.152	10.691	10.826
270000	10.847	0.156	10.795	10.929
280000	10.950	0.160	10.899	11.032
290000	11.053	0.164	10.999	11.135
300000	11.156	0.168	11.103	11.238

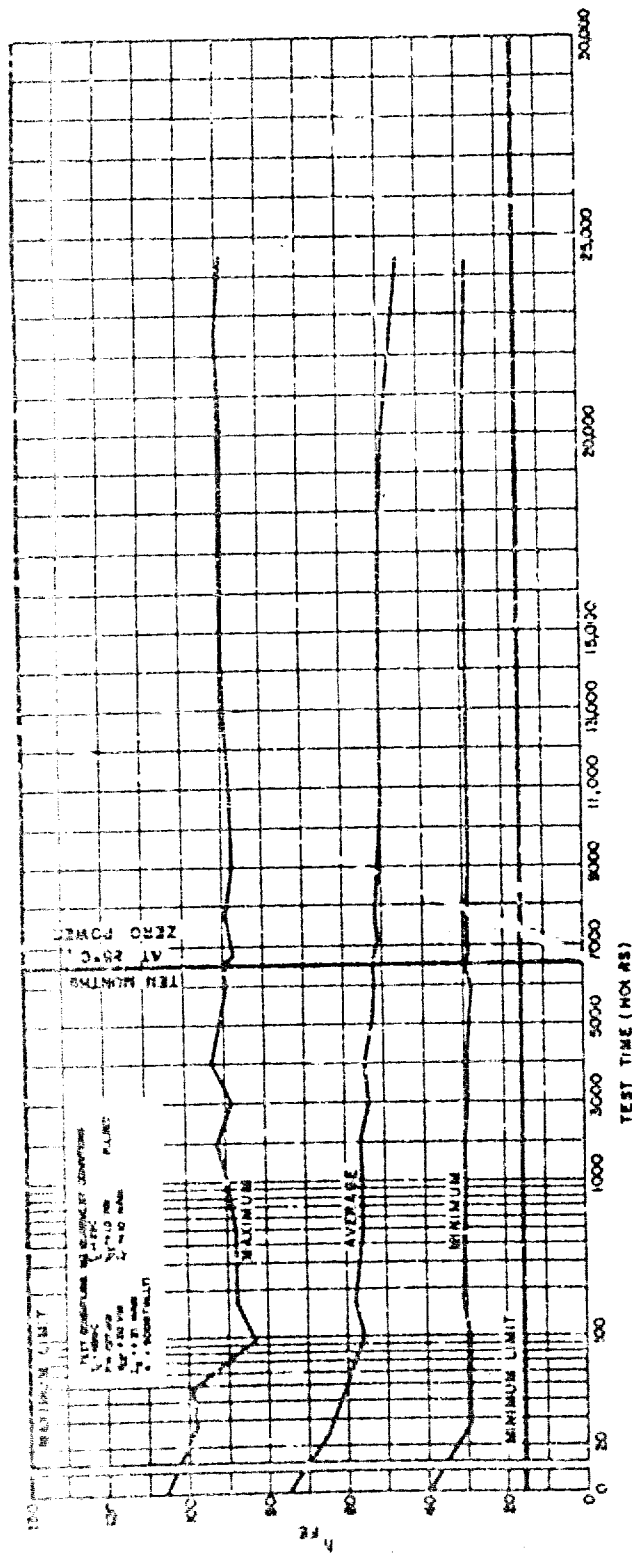
No Failures

Figure 3-79. Parameter Trend Chart, R2005P1, Ambient Life, BV ERO



TEST NUMBER	50 PARTS (FAILURES NOT INCLUDED)	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
1	1,170	1,170	1,170	1,170
2	1,170	1,170	1,170	1,170
3	1,170	1,170	1,170	1,170
4	1,170	1,170	1,170	1,170
5	1,170	1,170	1,170	1,170
6	1,170	1,170	1,170	1,170
7	1,170	1,170	1,170	1,170
8	1,170	1,170	1,170	1,170
9	1,170	1,170	1,170	1,170
10	1,170	1,170	1,170	1,170
11	1,170	1,170	1,170	1,170
12	1,170	1,170	1,170	1,170
13	1,170	1,170	1,170	1,170
14	1,170	1,170	1,170	1,170
15	1,170	1,170	1,170	1,170
16	1,170	1,170	1,170	1,170
17	1,170	1,170	1,170	1,170
18	1,170	1,170	1,170	1,170
19	1,170	1,170	1,170	1,170
20	1,170	1,170	1,170	1,170
21	1,170	1,170	1,170	1,170
22	1,170	1,170	1,170	1,170
23	1,170	1,170	1,170	1,170
24	1,170	1,170	1,170	1,170
25	1,170	1,170	1,170	1,170
26	1,170	1,170	1,170	1,170
27	1,170	1,170	1,170	1,170
28	1,170	1,170	1,170	1,170
29	1,170	1,170	1,170	1,170
30	1,170	1,170	1,170	1,170
31	1,170	1,170	1,170	1,170
32	1,170	1,170	1,170	1,170
33	1,170	1,170	1,170	1,170
34	1,170	1,170	1,170	1,170
35	1,170	1,170	1,170	1,170
36	1,170	1,170	1,170	1,170
37	1,170	1,170	1,170	1,170
38	1,170	1,170	1,170	1,170
39	1,170	1,170	1,170	1,170
40	1,170	1,170	1,170	1,170
41	1,170	1,170	1,170	1,170
42	1,170	1,170	1,170	1,170
43	1,170	1,170	1,170	1,170
44	1,170	1,170	1,170	1,170
45	1,170	1,170	1,170	1,170
46	1,170	1,170	1,170	1,170
47	1,170	1,170	1,170	1,170
48	1,170	1,170	1,170	1,170
49	1,170	1,170	1,170	1,170
50	1,170	1,170	1,170	1,170

Figure 3-80. Parameter Trend Chart, R2023P1, Phase V, CBO



AN 5 EXEMPT WTS

TEST RESULTS

1/3 POINTS (FAILURES NOT INCLUDED)

WTS VALUES

STANDARD DEVIATION

MAXIMUM VALUE

MINIMUM VALUE

TOTAL FAILURE

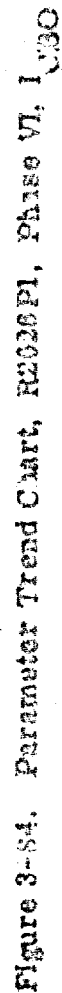
TIME TO FAILURE (HOURS)

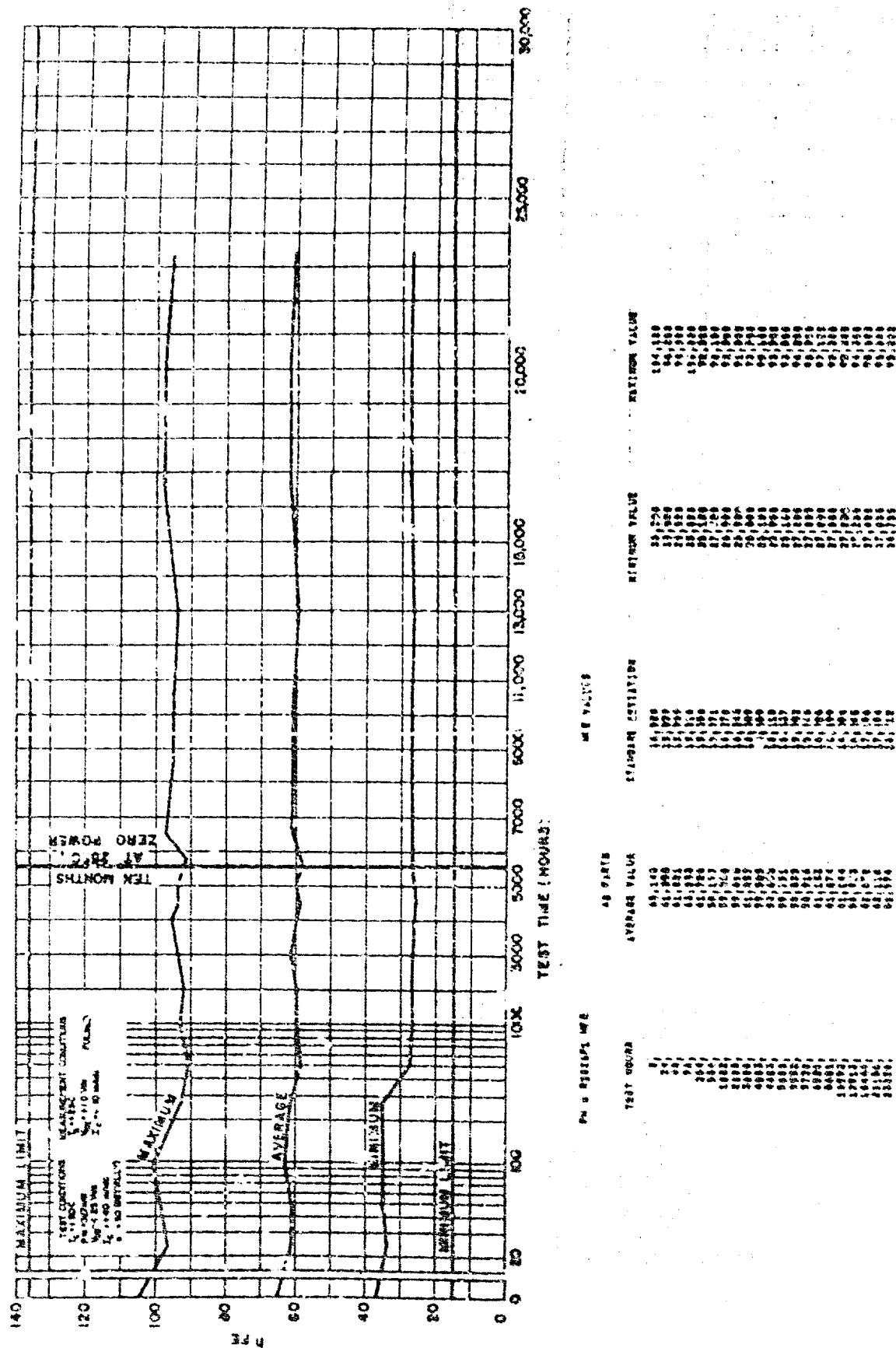
QUANTITY

Figure 3-81. Parameter: Trend Chart, R2026P1, Phase V, h 5E









No Failures

Figure 3-65. Parameter Trend Chart, R2000P1, Phase VI, hFE



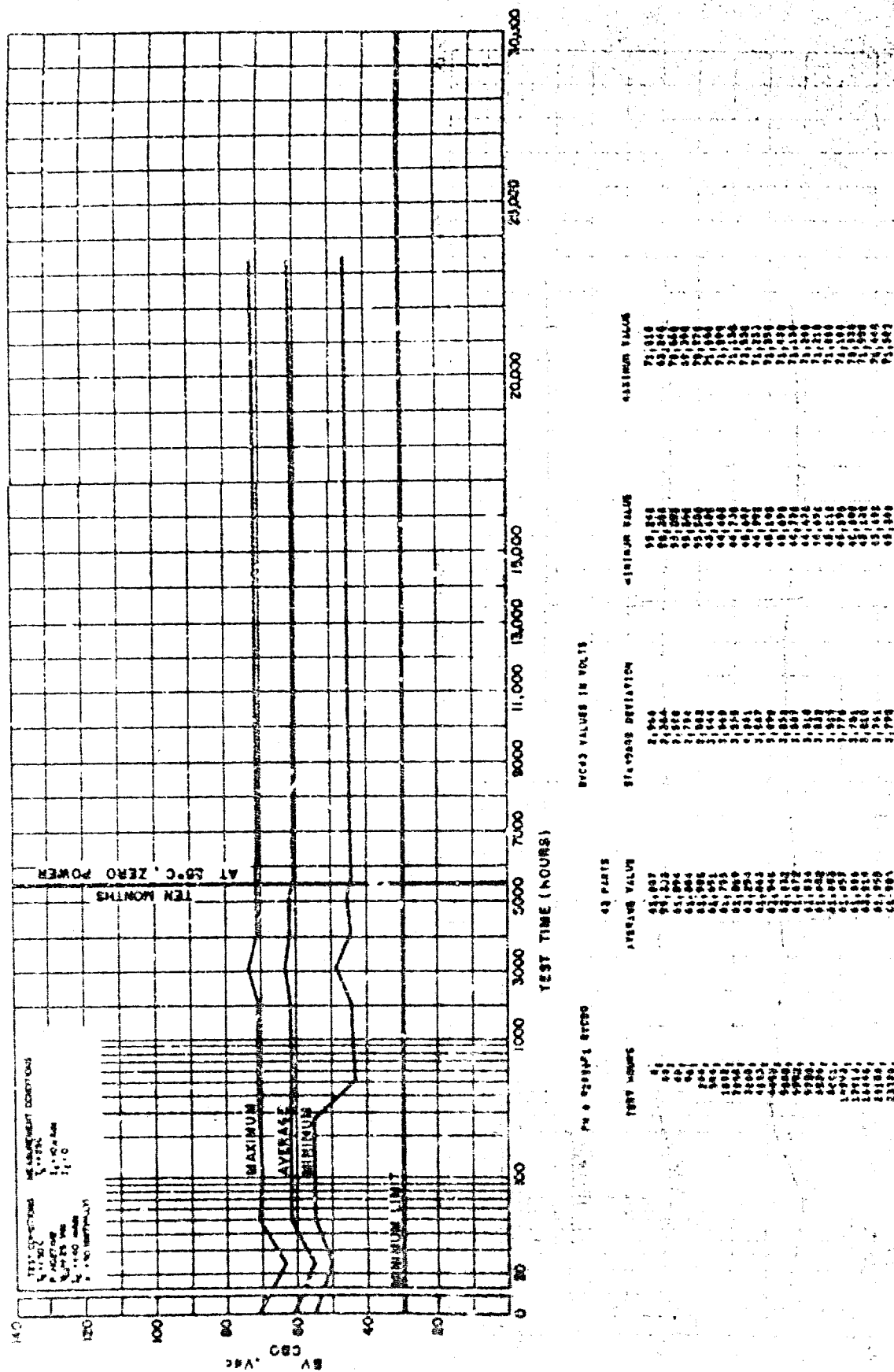


Figure 3-88. Parameter Trend Chart, R2028P1, Phase VI, BV CEO

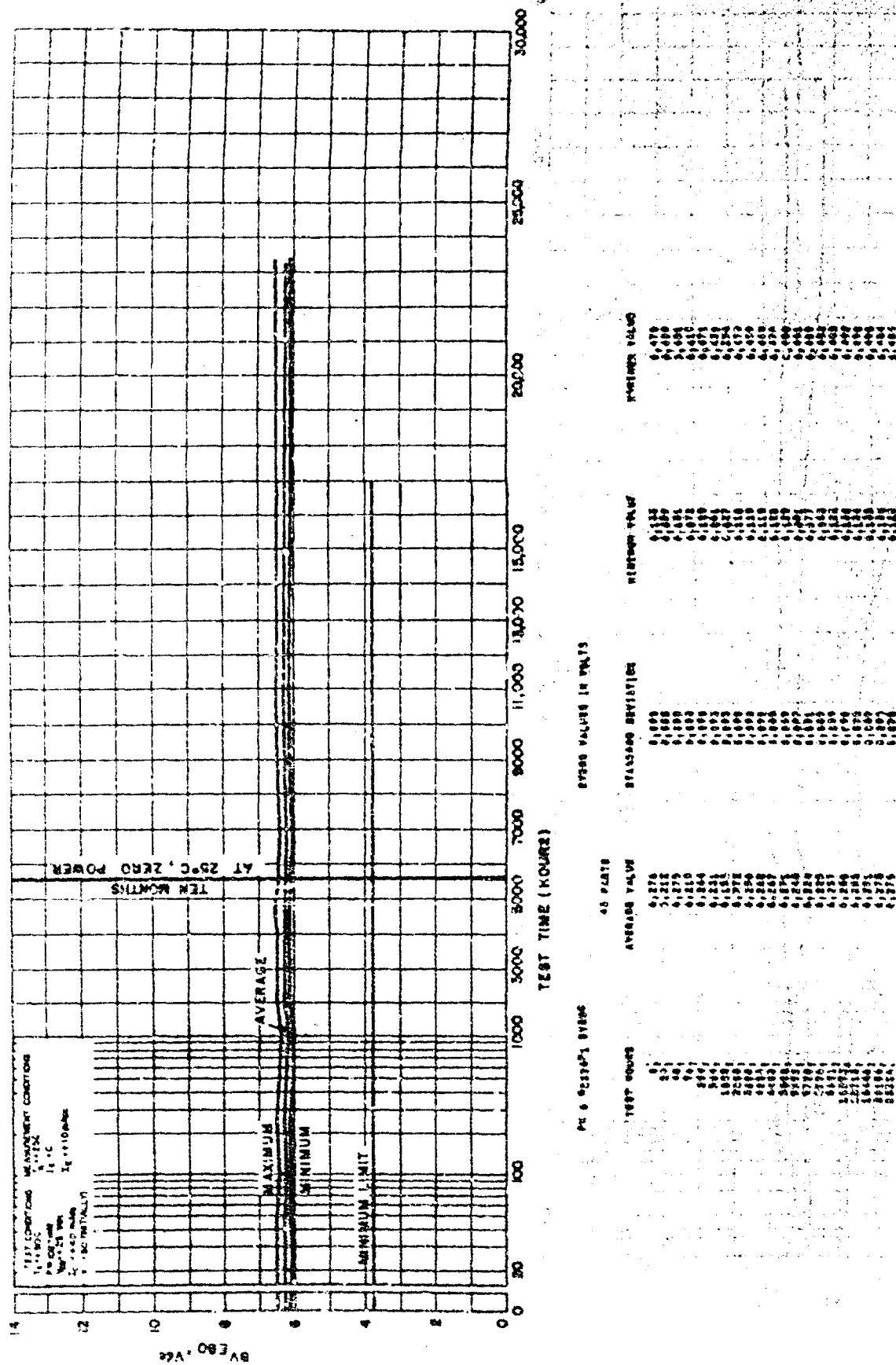
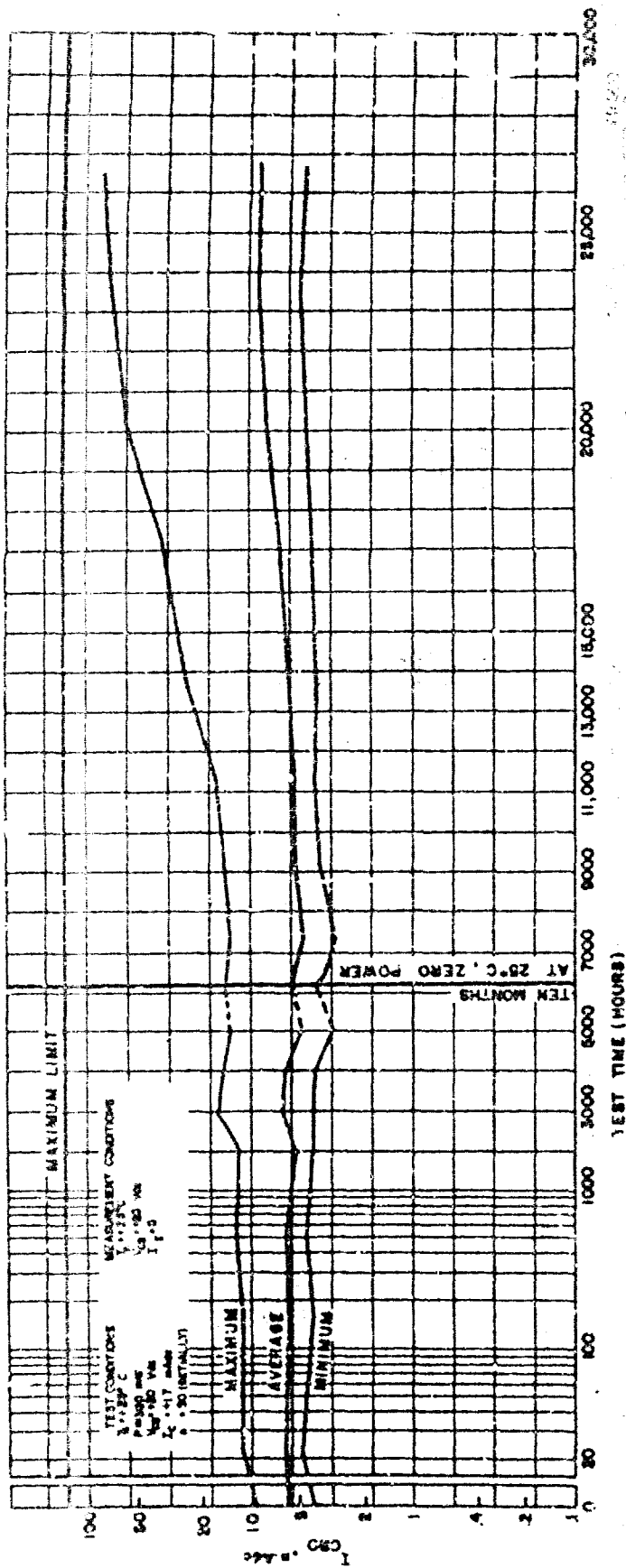


Figure 3-87. Parameter Trend Chart, R2028P1, Phase VI, BV EBO



LOW L. 200000 1000

(700) VALUES IN HOURS

TEST HOURS	40 PARTS AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
20	8.837	1.000	4.200	9.300
40	8.837	1.000	4.200	9.300
60	8.837	1.000	4.200	9.300
80	8.837	1.000	4.200	9.300
100	8.837	1.000	4.200	9.300
120	8.837	1.000	4.200	9.300
140	8.837	1.000	4.200	9.300
160	8.837	1.000	4.200	9.300
180	8.837	1.000	4.200	9.300
200	8.837	1.000	4.200	9.300
220	8.837	1.000	4.200	9.300
240	8.837	1.000	4.200	9.300
260	8.837	1.000	4.200	9.300
280	8.837	1.000	4.200	9.300
300	8.837	1.000	4.200	9.300
320	8.837	1.000	4.200	9.300
340	8.837	1.000	4.200	9.300
360	8.837	1.000	4.200	9.300
380	8.837	1.000	4.200	9.300
400	8.837	1.000	4.200	9.300
420	8.837	1.000	4.200	9.300
440	8.837	1.000	4.200	9.300
460	8.837	1.000	4.200	9.300
480	8.837	1.000	4.200	9.300
500	8.837	1.000	4.200	9.300
520	8.837	1.000	4.200	9.300
540	8.837	1.000	4.200	9.300
560	8.837	1.000	4.200	9.300
580	8.837	1.000	4.200	9.300
600	8.837	1.000	4.200	9.300
620	8.837	1.000	4.200	9.300
640	8.837	1.000	4.200	9.300
660	8.837	1.000	4.200	9.300
680	8.837	1.000	4.200	9.300
700	8.837	1.000	4.200	9.300
720	8.837	1.000	4.200	9.300
740	8.837	1.000	4.200	9.300
760	8.837	1.000	4.200	9.300
780	8.837	1.000	4.200	9.300
800	8.837	1.000	4.200	9.300
820	8.837	1.000	4.200	9.300
840	8.837	1.000	4.200	9.300
860	8.837	1.000	4.200	9.300
880	8.837	1.000	4.200	9.300
900	8.837	1.000	4.200	9.300
920	8.837	1.000	4.200	9.300
940	8.837	1.000	4.200	9.300
960	8.837	1.000	4.200	9.300
980	8.837	1.000	4.200	9.300
1000	8.837	1.000	4.200	9.300

No Failures

Figure 3-58. Parameter Trend Chart, R2020P1, Ambient Life, I<sub>CBO</sub>

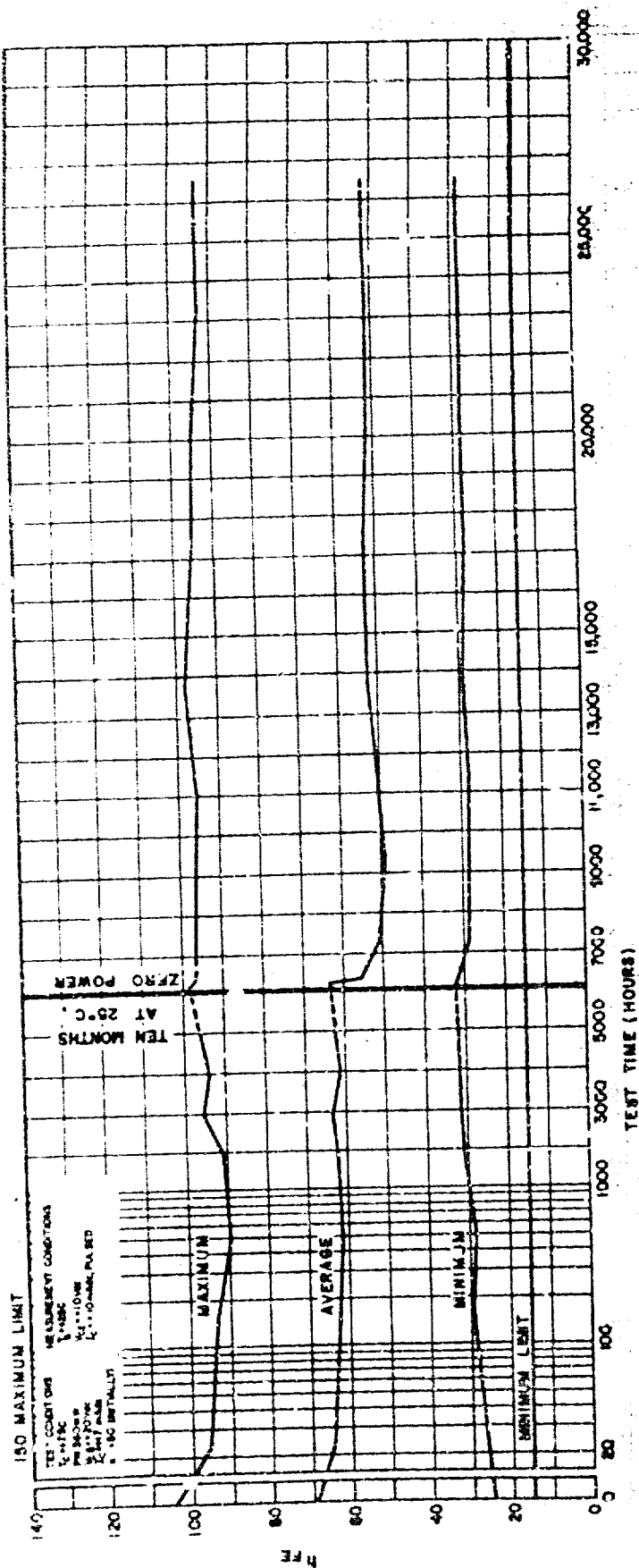


Fig. 3-89. R2026P1

hFE VALUES

TEST HOURS	hFE VALUE	STARTING VARIATION	hFE VALUE	MINIMUM VALUE
20	100	10	100	100
100	100	10	100	100
200	100	10	100	100
300	100	10	100	100
400	100	10	100	100
500	100	10	100	100
600	100	10	100	100
700	100	10	100	100
800	100	10	100	100
900	100	10	100	100
1000	100	10	100	100
1500	100	10	100	100
2000	100	10	100	100
2500	100	10	100	100
3000	100	10	100	100
3500	100	10	100	100
4000	100	10	100	100
4500	100	10	100	100
5000	100	10	100	100
5500	100	10	100	100
6000	100	10	100	100
6500	100	10	100	100
7000	100	10	100	100
7500	100	10	100	100
8000	100	10	100	100
8500	100	10	100	100
9000	100	10	100	100
9500	100	10	100	100
10000	100	10	100	100
15000	100	10	100	100
20000	100	10	100	100
25000	100	10	100	100
30000	100	10	100	100

No Failures

Figure 3-89. Parameter Trund Chart, R2026P1, Ambient Life, hFE



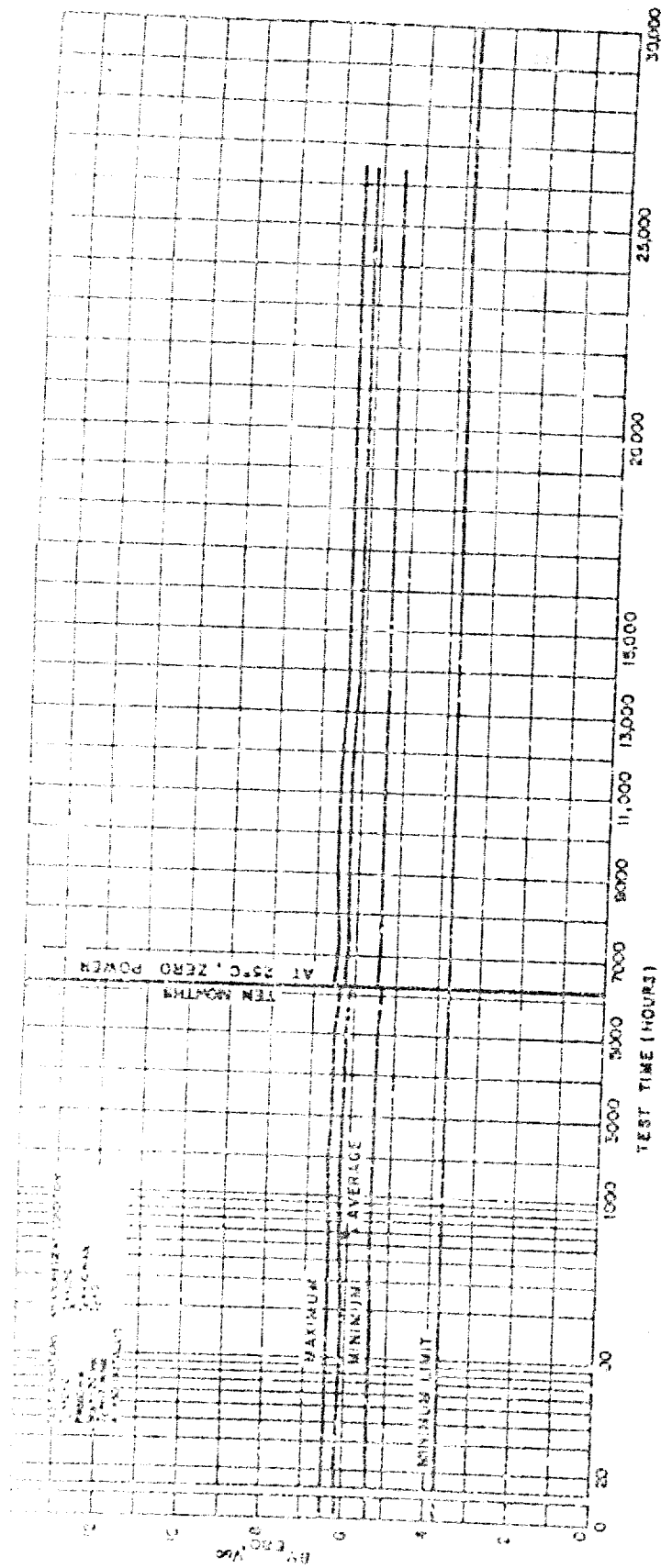
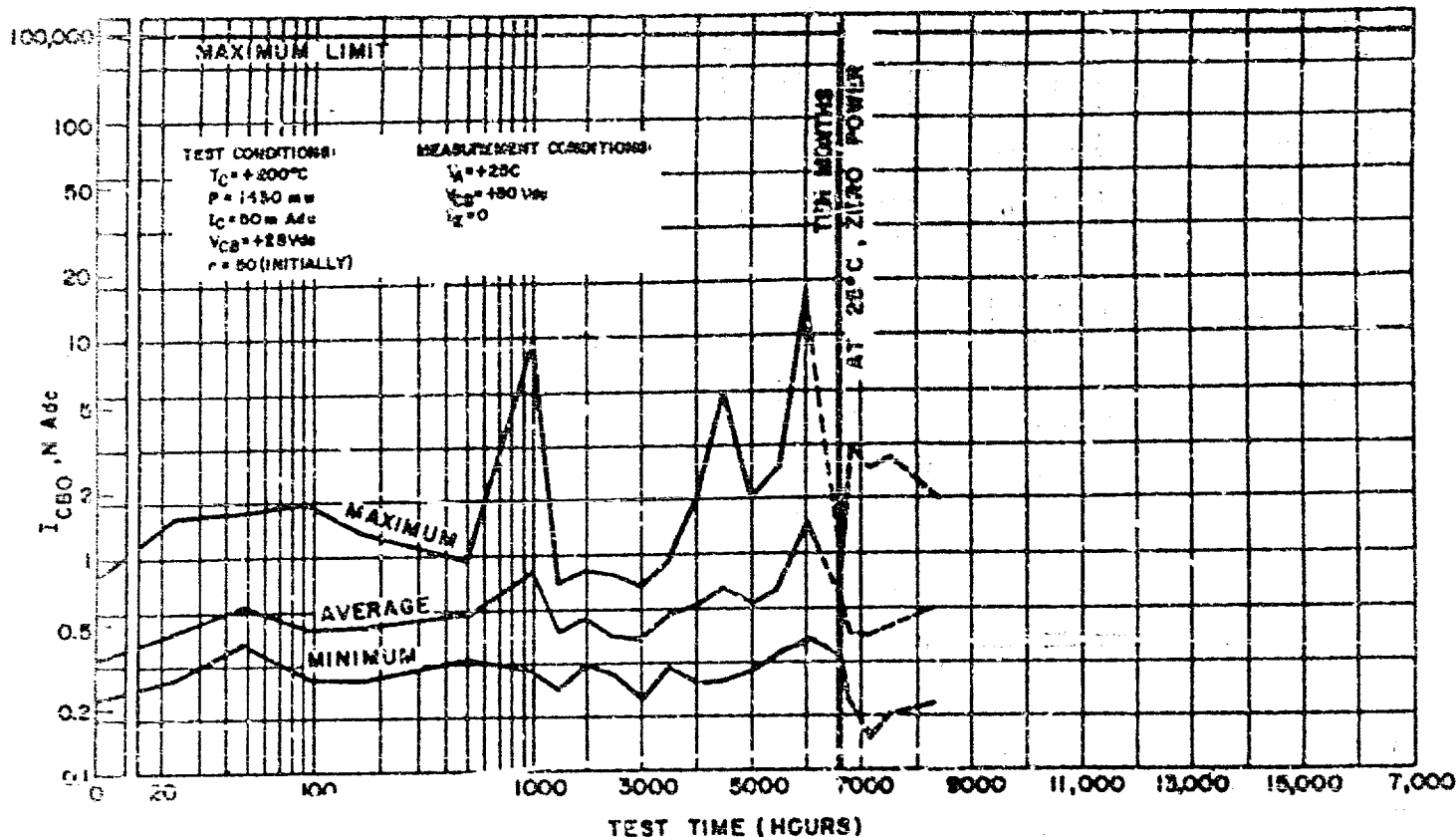


TABLE 1. R2023P1 DATA

TEST POINT	START VALUE	END VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
1	0.151	0.151	0.000	0.151	0.151
2	0.151	0.151	0.000	0.151	0.151
3	0.151	0.151	0.000	0.151	0.151
4	0.151	0.151	0.000	0.151	0.151
5	0.151	0.151	0.000	0.151	0.151
6	0.151	0.151	0.000	0.151	0.151
7	0.151	0.151	0.000	0.151	0.151
8	0.151	0.151	0.000	0.151	0.151
9	0.151	0.151	0.000	0.151	0.151
10	0.151	0.151	0.000	0.151	0.151
11	0.151	0.151	0.000	0.151	0.151
12	0.151	0.151	0.000	0.151	0.151
13	0.151	0.151	0.000	0.151	0.151
14	0.151	0.151	0.000	0.151	0.151
15	0.151	0.151	0.000	0.151	0.151
16	0.151	0.151	0.000	0.151	0.151
17	0.151	0.151	0.000	0.151	0.151
18	0.151	0.151	0.000	0.151	0.151
19	0.151	0.151	0.000	0.151	0.151
20	0.151	0.151	0.000	0.151	0.151
21	0.151	0.151	0.000	0.151	0.151
22	0.151	0.151	0.000	0.151	0.151
23	0.151	0.151	0.000	0.151	0.151
24	0.151	0.151	0.000	0.151	0.151
25	0.151	0.151	0.000	0.151	0.151
26	0.151	0.151	0.000	0.151	0.151
27	0.151	0.151	0.000	0.151	0.151
28	0.151	0.151	0.000	0.151	0.151
29	0.151	0.151	0.000	0.151	0.151
30	0.151	0.151	0.000	0.151	0.151

No Failures

Figure 3-91. Parameter Trend Chart, R2023P1, Ambient Life, BV EBO



24 4 Rev Sep 1 1988 MATRIX OF  $I_{CBO}$  VALUES IN HANDBOOK

30 PARTS

TEST HOURS	AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
0.	0.388	0.148	0.220	0.980
24.	0.348	0.222	0.220	1.050
48.	0.410	0.113	0.400	1.000
96.	0.462	0.248	0.300	1.300
144.	0.447	0.100	0.200	1.000
192.	0.328	0.137	0.220	0.700
240.	0.440	0.033	0.300	0.700
288.	0.442	0.133	0.300	0.700
336.	0.304	0.114	0.200	0.600
384.	0.441	0.128	0.200	0.600
432.	0.411	0.230	0.200	0.700
480.	0.327	0.147	0.200	0.600
528.	0.304	0.091	0.200	0.600
576.	0.400	0.064	0.200	0.700
624.	0.300	0.014	0.200	0.600
672.	0.410	0.418	0.200	2.250
720.	0.350	1.000	0.200	0.600
768.	0.300	0.137	0.200	0.600
816.	0.400	0.000	0.200	0.600
864.	0.448	0.000	0.200	0.600
912.	1.422	0.415	0.200	2.400
960.	0.400	0.270	0.200	0.300
1008.	0.250	0.371	0.200	1.700

TOTAL FAILURES

14

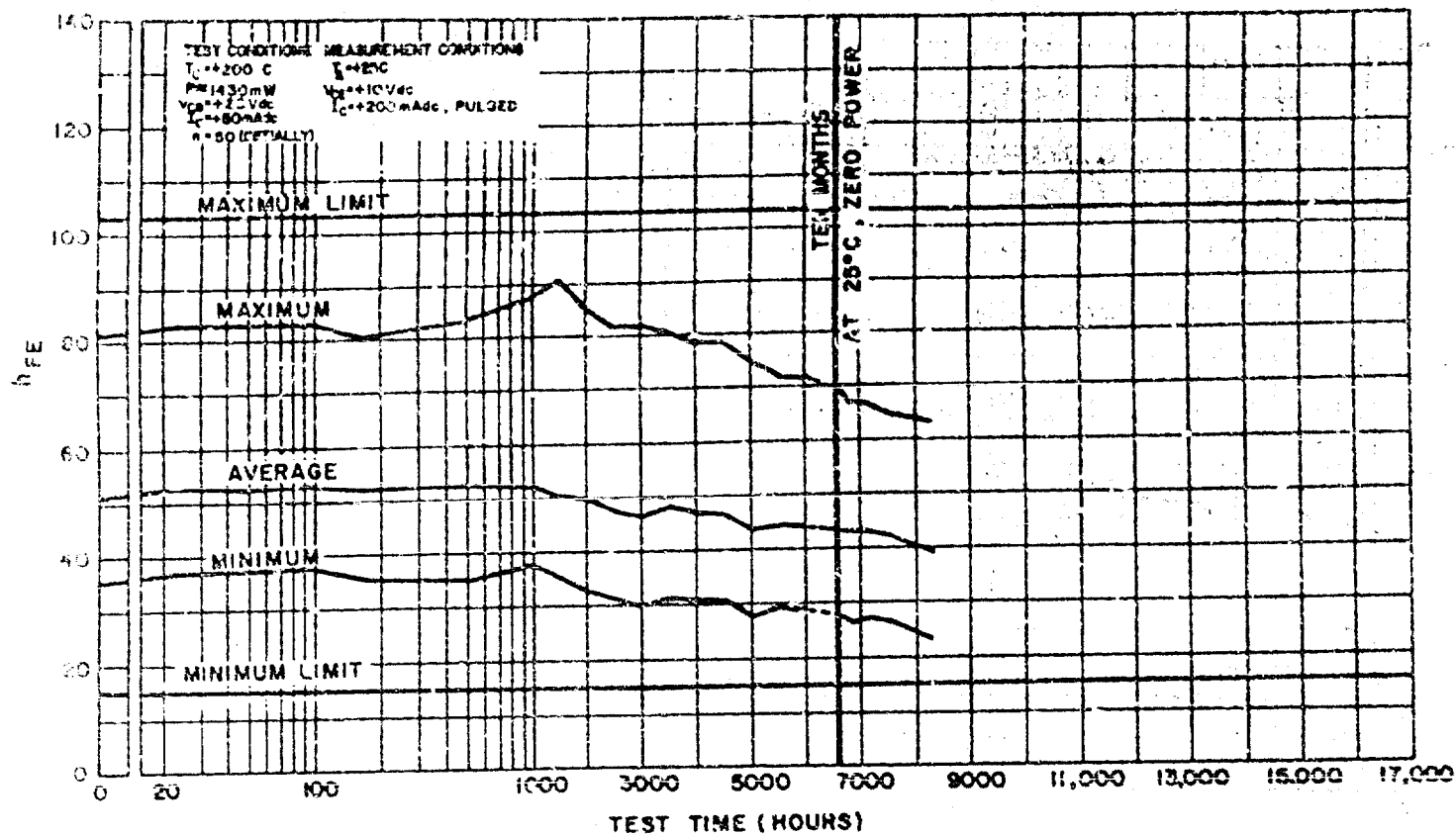
TIME TO FAILURE (HRS)

204  
1008  
1812  
3312  
3528  
3640  
3708

QUANTITY

2  
1  
0  
1  
1  
2  
1

Figure 3-92. Parameter Trend Chart, R2C50P1, Phase IV,  $I_{CBO}$



PARAMETER TREND VALUES				
IN PARTS				
TEST GROUPS	AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
1	21.890	1.183	20.790	81.000
2	23.473	1.129	21.100	83.300
3	22.013	1.177	21.400	83.500
4	23.433	1.129	21.700	83.300
5	22.902	1.175	21.700	80.000
6	22.111	1.129	21.100	83.300
7	22.097	1.129	21.700	87.000
8	22.590	1.129	21.100	90.000
9	22.100	1.129	21.700	85.100
10	22.100	1.129	21.200	81.000
11	22.100	1.129	21.900	81.000
12	22.100	1.129	21.200	80.000
13	22.100	1.129	21.200	78.400
14	22.100	1.129	21.200	78.400
15	22.100	1.129	21.200	78.400
16	22.100	1.129	21.200	78.400
17	22.100	1.129	21.200	78.400
18	22.100	1.129	21.200	78.400
19	22.100	1.129	21.200	78.400
20	22.100	1.129	21.200	78.400
21	22.100	1.129	21.200	78.400
22	22.100	1.129	21.200	78.400
23	22.100	1.129	21.200	78.400
24	22.100	1.129	21.200	78.400
25	22.100	1.129	21.200	78.400
26	22.100	1.129	21.200	78.400
27	22.100	1.129	21.200	78.400
28	22.100	1.129	21.200	78.400
29	22.100	1.129	21.200	78.400
30	22.100	1.129	21.200	78.400
31	22.100	1.129	21.200	78.400
32	22.100	1.129	21.200	78.400
33	22.100	1.129	21.200	78.400
34	22.100	1.129	21.200	78.400
35	22.100	1.129	21.200	78.400
36	22.100	1.129	21.200	78.400
37	22.100	1.129	21.200	78.400
38	22.100	1.129	21.200	78.400
39	22.100	1.129	21.200	78.400
40	22.100	1.129	21.200	78.400
41	22.100	1.129	21.200	78.400
42	22.100	1.129	21.200	78.400
43	22.100	1.129	21.200	78.400
44	22.100	1.129	21.200	78.400
45	22.100	1.129	21.200	78.400
46	22.100	1.129	21.200	78.400
47	22.100	1.129	21.200	78.400
48	22.100	1.129	21.200	78.400
49	22.100	1.129	21.200	78.400
50	22.100	1.129	21.200	78.400

TOTAL FAILURES

24

TIME TO FAILURE (HRS)

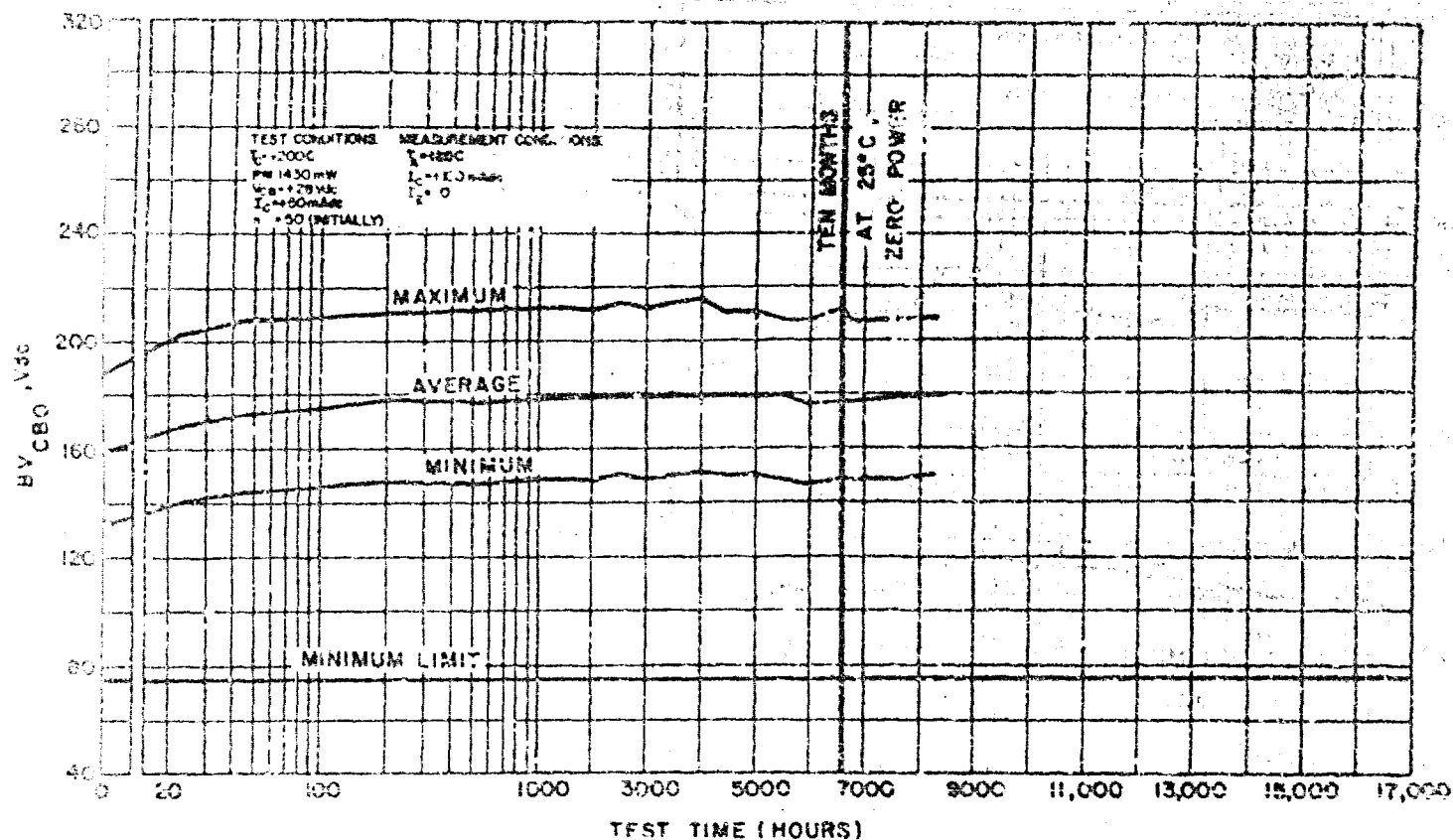
504  
1008  
1612  
2240  
3528  
3540  
3708

QUANTITY

2  
1  
6  
1  
1  
2  
1

Figure 3-93. Parameter Trend Chart, H2050P1, Phase IV,  $h_{FE}$





PHASE IV DATA SUMMARY

TABLE OF AVERAGE VALUES IN VOLTS

30 PAGES

TEST GROUP	AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
100	157.111	15.017	132.200	187.000
200	159.271	15.170	141.100	203.000
300	171.071	17.450	149.200	207.500
400	173.171	17.217	145.900	208.200
500	176.577	17.087	143.100	208.700
600	175.071	17.007	147.900	207.400
700	176.897	17.077	148.700	207.200
800	176.071	16.117	146.000	207.100
900	178.103	16.270	149.000	208.200
1000	177.271	16.117	150.400	208.000
1100	177.071	16.070	149.800	208.700
1200	178.277	16.177	151.400	208.900
1300	176.023	16.000	147.900	207.100
1400	177.071	16.000	147.900	208.000
1500	176.071	17.000	146.000	207.000
1600	178.077	17.000	147.000	207.000
1700	178.071	16.070	148.000	207.000
1800	178.071	16.127	149.000	207.000
1900	177.071	17.070	149.000	207.000
2000	177.071	17.070	149.000	207.000
2100	178.071	17.070	149.000	207.000
2200	178.071	17.070	149.000	207.000
2300	178.071	17.070	149.000	207.000
2400	178.071	17.070	149.000	207.000
2500	178.071	17.070	149.000	207.000
2600	178.071	17.070	149.000	207.000
2700	178.071	17.070	149.000	207.000
2800	178.071	17.070	149.000	207.000
2900	178.071	17.070	149.000	207.000
3000	178.071	17.070	149.000	207.000

TOTAL FAILURES

14

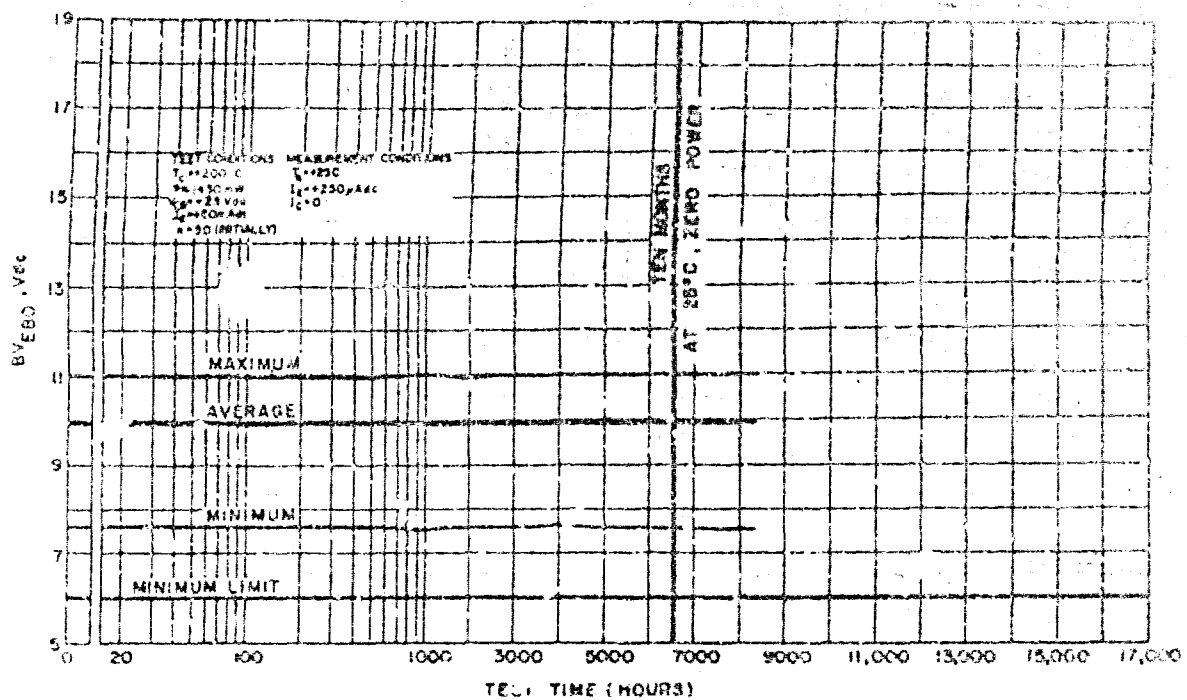
TIME TO FAILURE (HRS)

504  
1006  
1312  
1343  
1328  
1349  
1709

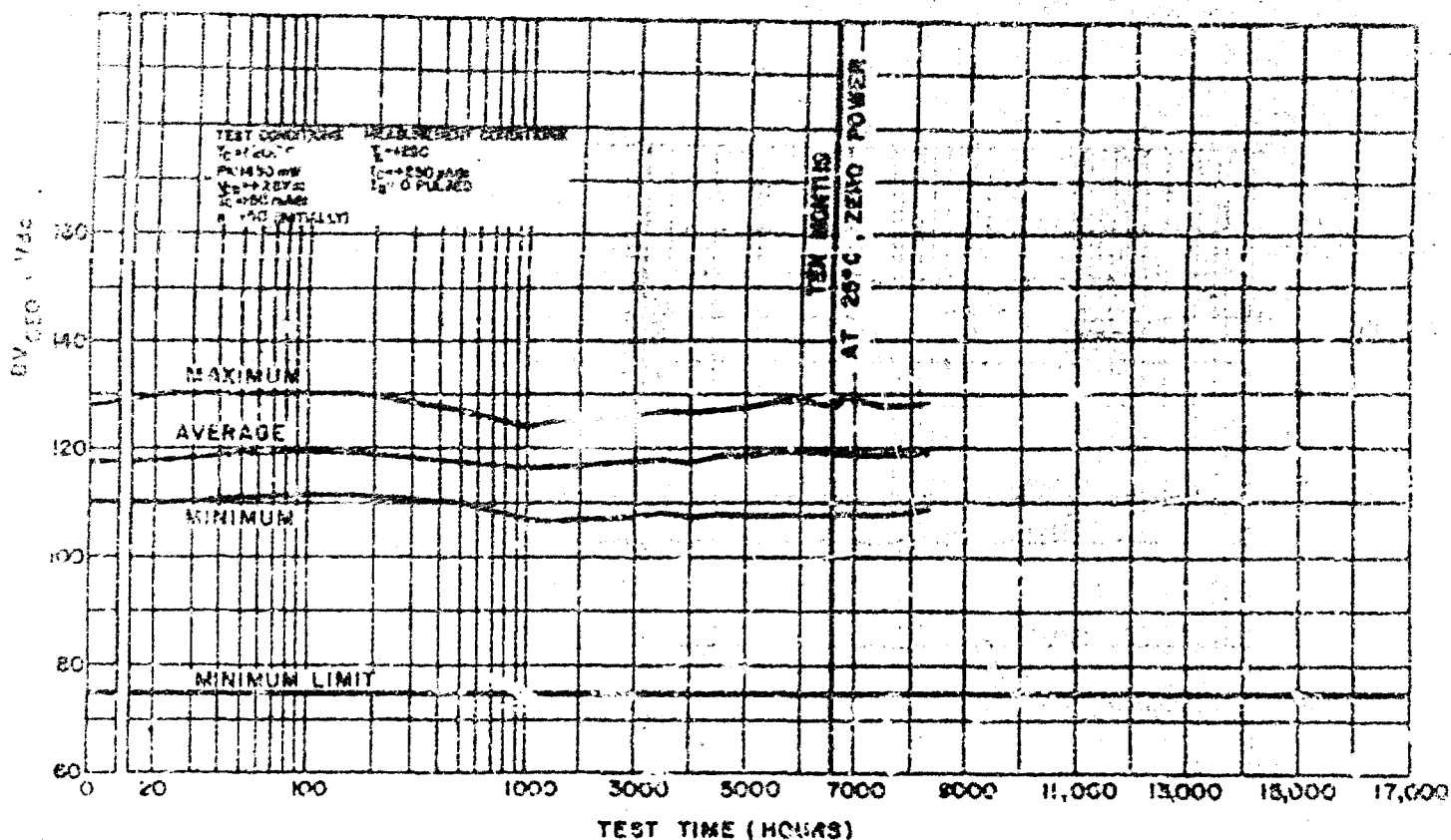
QUANTITY

2  
1  
6  
1  
1  
2  
1

Figure 3-94. Parameter Trend Chart, R2050P1, Phase IV, BV CBO



TEST VALUES	MEAN VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
1.000	10.000	0.000	10.000	11.000
1.001	10.001	0.000	10.001	11.001
1.002	10.002	0.000	10.002	11.002
1.003	10.003	0.000	10.003	11.003
1.004	10.004	0.000	10.004	11.004
1.005	10.005	0.000	10.005	11.005
1.006	10.006	0.000	10.006	11.006
1.007	10.007	0.000	10.007	11.007
1.008	10.008	0.000	10.008	11.008
1.009	10.009	0.000	10.009	11.009
1.010	10.010	0.000	10.010	11.010
1.011	10.011	0.000	10.011	11.011
1.012	10.012	0.000	10.012	11.012
1.013	10.013	0.000	10.013	11.013
1.014	10.014	0.000	10.014	11.014
1.015	10.015	0.000	10.015	11.015
1.016	10.016	0.000	10.016	11.016
1.017	10.017	0.000	10.017	11.017
1.018	10.018	0.000	10.018	11.018
1.019	10.019	0.000	10.019	11.019
1.020	10.020	0.000	10.020	11.020
1.021	10.021	0.000	10.021	11.021
1.022	10.022	0.000	10.022	11.022
1.023	10.023	0.000	10.023	11.023
1.024	10.024	0.000	10.024	11.024
1.025	10.025	0.000	10.025	11.025
1.026	10.026	0.000	10.026	11.026
1.027	10.027	0.000	10.027	11.027
1.028	10.028	0.000	10.028	11.028
1.029	10.029	0.000	10.029	11.029
1.030	10.030	0.000	10.030	11.030
1.031	10.031	0.000	10.031	11.031
1.032	10.032	0.000	10.032	11.032
1.033	10.033	0.000	10.033	11.033
1.034	10.034	0.000	10.034	11.034
1.035	10.035	0.000	10.035	11.035
1.036	10.036	0.000	10.036	11.036
1.037	10.037	0.000	10.037	11.037
1.038	10.038	0.000	10.038	11.038
1.039	10.039	0.000	10.039	11.039
1.040	10.040	0.000	10.040	11.040
1.041	10.041	0.000	10.041	11.041
1.042	10.042	0.000	10.042	11.042
1.043	10.043	0.000	10.043	11.043
1.044	10.044	0.000	10.044	11.044
1.045	10.045	0.000	10.045	11.045
1.046	10.046	0.000	10.046	11.046
1.047	10.047	0.000	10.047	11.047
1.048	10.048	0.000	10.048	11.048
1.049	10.049	0.000	10.049	11.049
1.050	10.050	0.000	10.050	11.050
1.051	10.051	0.000	10.051	11.051
1.052	10.052	0.000	10.052	11.052
1.053	10.053	0.000	10.053	11.053
1.054	10.054	0.000	10.054	11.054
1.055	10.055	0.000	10.055	11.055
1.056	10.056	0.000	10.056	11.056
1.057	10.057	0.000	10.057	11.057
1.058	10.058	0.000	10.058	11.058
1.059	10.059	0.000	10.059	11.059
1.060	10.060	0.000	10.060	11.060
1.061	10.061	0.000	10.061	11.061
1.062	10.062	0.000	10.062	11.062
1.063	10.063	0.000	10.063	11.063
1.064	10.064	0.000	10.064	11.064
1.065	10.065	0.000	10.065	11.065
1.066	10.066	0.000	10.066	11.066
1.067	10.067	0.000	10.067	11.067
1.068	10.068	0.000	10.068	11.068
1.069	10.069	0.000	10.069	11.069
1.070	10.070	0.000	10.070	11.070
1.071	10.071	0.000	10.071	11.071
1.072	10.072	0.000	10.072	11.072
1.073	10.073	0.000	10.073	11.073
1.074	10.074	0.000	10.074	11.074
1.075	10.075	0.000	10.075	11.075
1.076	10.076	0.000	10.076	11.076
1.077	10.077	0.000	10.077	11.077
1.078	10.078	0.000	10.078	11.078
1.079	10.079	0.000	10.079	11.079
1.080	10.080	0.000	10.080	11.080
1.081	10.081	0.000	10.081	11.081
1.082	10.082	0.000	10.082	11.082
1.083	10.083	0.000	10.083	11.083
1.084	10.084	0.000	10.084	11.084
1.085	10.085	0.000	10.085	11.085
1.086	10.086	0.000	10.086	11.086
1.087	10.087	0.000	10.087	11.087
1.088	10.088	0.000	10.088	11.088
1.089	10.089	0.000	10.089	11.089
1.090	10.090	0.000	10.090	11.090
1.091	10.091	0.000	10.091	11.091
1.092	10.092	0.000	10.092	11.092
1.093	10.093	0.000	10.093	11.093
1.094	10.094	0.000	10.094	11.094
1.095	10.095	0.000	10.095	11.095
1.096	10.096	0.000	10.096	11.096
1.097	10.097	0.000	10.097	11.097
1.098	10.098	0.000	10.098	11.098
1.099	10.099	0.000	10.099	11.099
1.100	10.100	0.000	10.100	11.100
1.101	10.101	0.000	10.101	11.101
1.102	10.102	0.000	10.102	11.102
1.103	10.103	0.000	10.103	11.103
1.104	10.104	0.000	10.104	11.104
1.105	10.105	0.000	10.105	11.105
1.106	10.106	0.000	10.106	11.106
1.107	10.107	0.000	10.107	11.107
1.108	10.108	0.000	10.108	11.108
1.109	10.109	0.000	10.109	11.109
1.110	10.110	0.000	10.110	11.110
1.111	10.111	0.000	10.111	11.111
1.112	10.112	0.000	10.112	11.112
1.113	10.113	0.000	10.113	11.113
1.114	10.114	0.000	10.114	11.114
1.115	10.115	0.000	10.115	11.115
1.116	10.116	0.000	10.116	11.116
1.117	10.117	0.000	10.117	11.117
1.118	10.118	0.000	10.118	11.118
1.119	10.119	0.000	10.119	11.119
1.120	10.120	0.000	10.120	11.120
1.121	10.121	0.000	10.121	11.121
1.122	10.122	0.000	10.122	11.122
1.123	10.123	0.000	10.123	11.123
1.124	10.124	0.000	10.124	11.124
1.125	10.125	0.000	10.125	11.125
1.126	10.126	0.000	10.126	11.126
1.127	10.127	0.000	10.127	11.127
1.128	10.128	0.000	10.128	11.128
1.129	10.129	0.000	10.129	11.129
1.130	10.130	0.000	10.130	11.130
1.131	10.131	0.000	10.131	11.131
1.132	10.132	0.000	10.132	11.132
1.133	10.133	0.000	10.133	11.133
1.134	10.134	0.000	10.134	11.134
1.135	10.135	0.000	10.135	11.135
1.136	10.136	0.000	10.136	11.136
1.137	10.137	0.000	10.137	11.137
1.138	10.138	0.000	10.138	11.138
1.139	10.139	0.000	10.139	11.139
1.140	10.140	0.000	10.140	11.140
1.141	10.141	0.000	10.141	11.141
1.142	10.142	0.000	10.142	11.142
1.143	10.143	0.000	10.143	11.143
1.144	10.144	0.000	10.144	11.144
1.145	10.145	0.000	10.145	11.145
1.146	10.146	0.000	10.146	11.146
1.147	10.147	0.000	10.147	11.147
1.148	10.148	0.000	10.148	11.148
1.149	10.149	0.000	10.149	11.149
1.150	10.150	0.000	10.150	11.150
1.151	10.151	0.000	10.151	11.151
1.152	10.152	0.000	10.152	11.152
1.153	10.153	0.000	10.153	11.153
1.154	10.154	0.000	10.154	11.154
1.155	10.155	0.000	10.155	11.155
1.156	10.156	0.000	10.156	11.156
1.157	10.157	0.000	10.157	11.157
1.158	10.158	0.000	10.158	11.158
1.159	10.159	0.000	10.159	11.159
1.160	10.160	0.000	10.160	11.160
1.161	10.161	0.000	10.161	11.161
1.162	10.162	0.000	10.162	11.162
1.163	10.163	0.000	10.163	11.163
1.164	10.164	0.000	10.164	11.164
1.165	10.165	0.000	10.165	11.165
1.166	10.166	0.000	10.166	11.166
1.167	10.167	0.000	10.167	11.167
1.168	10.168	0.000	10.168	11.168
1.169	10.169	0.000	10.169	11.169
1.170	10.170	0.000	10.170	11.170
1.171	10.171	0.000	10.171	11.171
1.172	10.172	0.000	10.172	11.172
1.173	10.173	0.000	10.173	11.173
1.174	10.174	0.000	10.174	11.174
1.175	10.175	0.000	10.175	11.175
1.176	10.176	0.000	10.176	11.176
1.177	10.177	0.000	10.177	11.177
1.178	10.178	0.000	10.178	11.178
1.179	10.179	0.000	10.179	11.179
1.180	10.180	0.000	10.180	11.180
1.181	10.181	0.000	10.181	11.181
1.182	10.182	0.000	10.182	11.182
1.183	10.183	0.000	10.183	11.183
1.184	10.184	0.000	10.184	11.184
1.185	10.185	0.000	10.185	11.185
1.186	10.186	0.000	10.186	11.186
1.187	10.187	0.000	10.187	11.187
1.188	10.188	0.000	10.188	11.188
1.189	10.189	0.000	10.189	11.189
1.190	10.190	0.000	10.190	11.190
1.191	10.191	0.000	10.191	11.191
1.192	10.192	0.000	10.192	11.192
1.193	10.193	0.000	10.193	11.193
1.194	10.194	0.000	10.194	11.194
1.195	10.195	0.000	10.195	11.195
1.196	10.196	0.000	10.196	11.196
1.197	10.197	0.000	10.197	11.197
1.198	10.198	0.000	10.198	11.198
1.199	10.199	0.000	10.199	11.199
1.200	10.200	0.000	10.200	11.200
1.201	10.201	0.000	10.201	11.201
1.202	10.202	0.000	10.202	11.202
1.203	10.203	0.000	10.203	11.203
1.204	10.204	0.000	10.204	11.2



MINIMUM VALUE MAXIMUM VALUE VALUES IN VOLTS

TEST NUMBER

AVERAGE VALUE

STANDARD DEVIATION

MINIMUM VALUE

MAXIMUM VALUE

1	117.5	0.002	117.5	117.5
2	117.5	0.002	117.5	117.5
3	117.5	0.002	117.5	117.5
4	117.5	0.002	117.5	117.5
5	117.5	0.002	117.5	117.5
6	117.5	0.002	117.5	117.5
7	117.5	0.002	117.5	117.5
8	117.5	0.002	117.5	117.5
9	117.5	0.002	117.5	117.5
10	117.5	0.002	117.5	117.5
11	117.5	0.002	117.5	117.5
12	117.5	0.002	117.5	117.5
13	117.5	0.002	117.5	117.5
14	117.5	0.002	117.5	117.5
15	117.5	0.002	117.5	117.5
16	117.5	0.002	117.5	117.5
17	117.5	0.002	117.5	117.5
18	117.5	0.002	117.5	117.5
19	117.5	0.002	117.5	117.5
20	117.5	0.002	117.5	117.5
21	117.5	0.002	117.5	117.5
22	117.5	0.002	117.5	117.5
23	117.5	0.002	117.5	117.5
24	117.5	0.002	117.5	117.5
25	117.5	0.002	117.5	117.5
26	117.5	0.002	117.5	117.5
27	117.5	0.002	117.5	117.5
28	117.5	0.002	117.5	117.5
29	117.5	0.002	117.5	117.5
30	117.5	0.002	117.5	117.5
31	117.5	0.002	117.5	117.5
32	117.5	0.002	117.5	117.5
33	117.5	0.002	117.5	117.5
34	117.5	0.002	117.5	117.5
35	117.5	0.002	117.5	117.5
36	117.5	0.002	117.5	117.5
37	117.5	0.002	117.5	117.5
38	117.5	0.002	117.5	117.5
39	117.5	0.002	117.5	117.5
40	117.5	0.002	117.5	117.5
41	117.5	0.002	117.5	117.5
42	117.5	0.002	117.5	117.5
43	117.5	0.002	117.5	117.5
44	117.5	0.002	117.5	117.5
45	117.5	0.002	117.5	117.5
46	117.5	0.002	117.5	117.5
47	117.5	0.002	117.5	117.5
48	117.5	0.002	117.5	117.5
49	117.5	0.002	117.5	117.5
50	117.5	0.002	117.5	117.5

TOTAL FAILURES

TIME TO FAILURE (HRS)

QUANTITY

14

504

2

1006

1

1812

6

3243

1

3536

1

3548

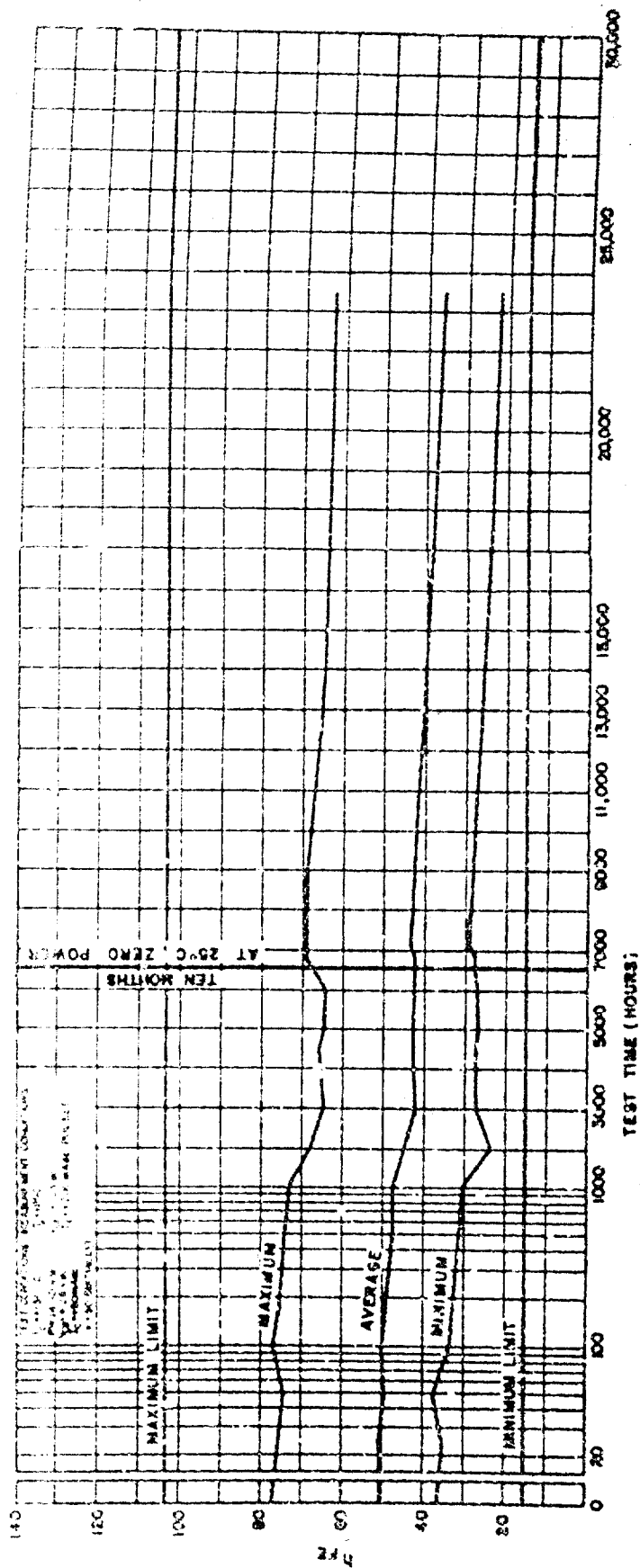
2

3788

1

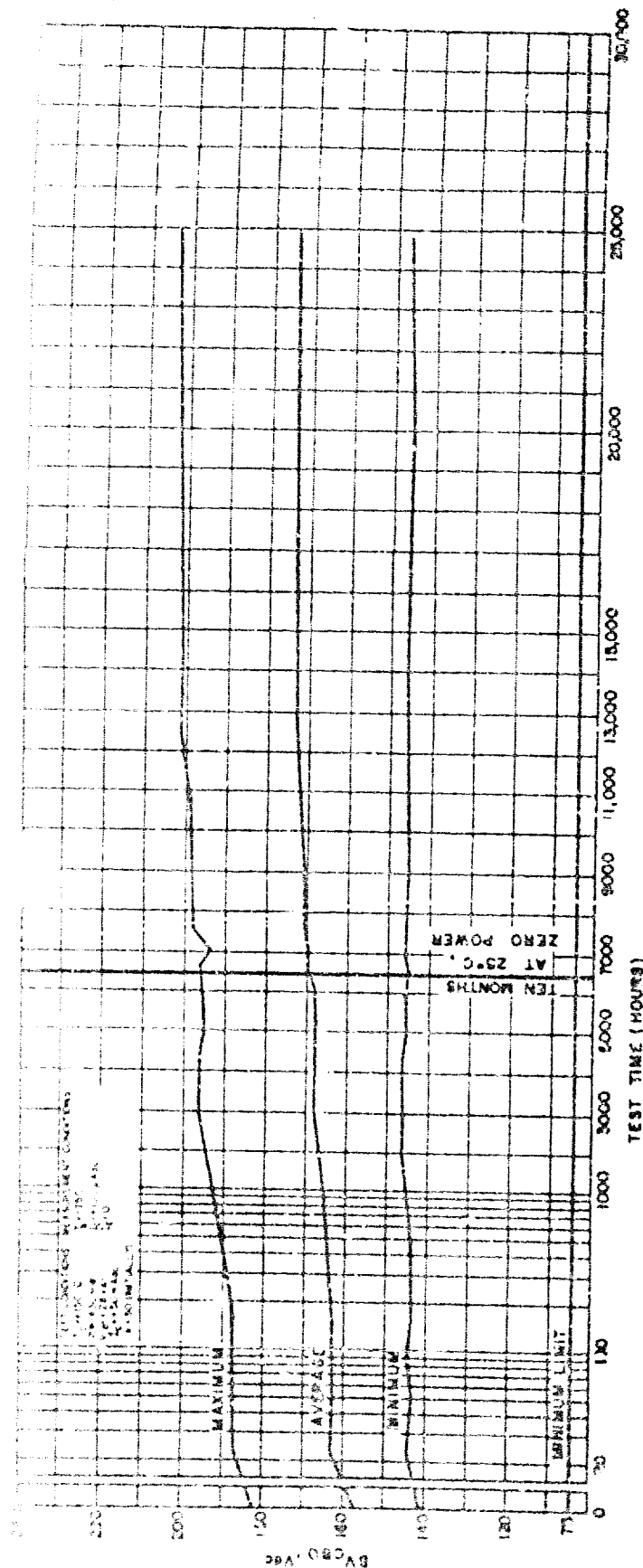
Figure 3-96. Parameter Trend Chart, R2050P1, Phase IV, BV\_CEO





TEST NUMBER	ACTUAL FAILURE	TIME TO FAILURE (HOURS)	QUANTITY
1	0.100	0.100	1
2	0.100	0.100	1
3	0.100	0.100	1
4	0.100	0.100	1
5	0.100	0.100	1
6	0.100	0.100	1
7	0.100	0.100	1
8	0.100	0.100	1
9	0.100	0.100	1
10	0.100	0.100	1
11	0.100	0.100	1
12	0.100	0.100	1
13	0.100	0.100	1
14	0.100	0.100	1
15	0.100	0.100	1
16	0.100	0.100	1
17	0.100	0.100	1
18	0.100	0.100	1
19	0.100	0.100	1
20	0.100	0.100	1
21	0.100	0.100	1
22	0.100	0.100	1
23	0.100	0.100	1
24	0.100	0.100	1
25	0.100	0.100	1
26	0.100	0.100	1
27	0.100	0.100	1
28	0.100	0.100	1
29	0.100	0.100	1
30	0.100	0.100	1
31	0.100	0.100	1
32	0.100	0.100	1
33	0.100	0.100	1
34	0.100	0.100	1
35	0.100	0.100	1
36	0.100	0.100	1
37	0.100	0.100	1
38	0.100	0.100	1
39	0.100	0.100	1
40	0.100	0.100	1
41	0.100	0.100	1
42	0.100	0.100	1
43	0.100	0.100	1
44	0.100	0.100	1
45	0.100	0.100	1
46	0.100	0.100	1
47	0.100	0.100	1
48	0.100	0.100	1
49	0.100	0.100	1
50	0.100	0.100	1

Figure 3-98. Parameter Trend Chart, R2050P1, Phase V, h<sub>FE</sub>



PH 8 RESISTOR BYC20

45 PARTS (FAILURES NOT INCLUDED)

TEST NUMBER	AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
81	150,492	18,039	145,209	161,789
82	149,731	11,276	145,059	161,789
83	149,000	11,326	143,209	161,789
84	148,289	11,417	143,059	161,789
85	147,578	11,387	143,059	161,789
86	146,867	11,746	143,059	161,789
87	146,156	12,119	143,059	161,789
88	145,445	13,093	143,059	161,789
89	144,734	13,833	143,059	161,789
90	144,023	12,728	143,059	161,789
91	143,312	12,055	143,059	161,789
92	142,601	13,000	143,059	161,789
93	141,890	13,884	143,059	161,789
94	141,179	13,862	143,059	161,789
95	140,468	14,615	143,059	161,789
96	139,757	15,052	143,059	161,789
97	139,046	14,488	143,059	161,789
98	138,335	14,409	143,059	161,789
99	137,624	14,607	143,059	161,789
100	136,913	15,176	143,059	161,789
101	136,202	15,075	143,059	161,789
102	135,491	15,000	143,059	161,789
103	134,780	15,000	143,059	161,789
104	134,069	15,000	143,059	161,789
105	133,358	15,000	143,059	161,789
106	132,647	15,000	143,059	161,789
107	131,936	15,000	143,059	161,789
108	131,225	15,000	143,059	161,789
109	130,514	15,000	143,059	161,789
110	129,803	15,000	143,059	161,789
111	129,092	15,000	143,059	161,789
112	128,381	15,000	143,059	161,789
113	127,670	15,000	143,059	161,789
114	126,959	15,000	143,059	161,789
115	126,248	15,000	143,059	161,789
116	125,537	15,000	143,059	161,789
117	124,826	15,000	143,059	161,789
118	124,115	15,000	143,059	161,789
119	123,404	15,000	143,059	161,789
120	122,693	15,000	143,059	161,789
121	121,982	15,000	143,059	161,789
122	121,271	15,000	143,059	161,789
123	120,560	15,000	143,059	161,789
124	119,849	15,000	143,059	161,789
125	119,138	15,000	143,059	161,789
126	118,427	15,000	143,059	161,789
127	117,716	15,000	143,059	161,789
128	117,005	15,000	143,059	161,789
129	116,294	15,000	143,059	161,789
130	115,583	15,000	143,059	161,789
131	114,872	15,000	143,059	161,789
132	114,161	15,000	143,059	161,789
133	113,450	15,000	143,059	161,789
134	112,739	15,000	143,059	161,789
135	112,028	15,000	143,059	161,789
136	111,317	15,000	143,059	161,789
137	110,606	15,000	143,059	161,789
138	109,895	15,000	143,059	161,789
139	109,184	15,000	143,059	161,789
140	108,473	15,000	143,059	161,789
141	107,762	15,000	143,059	161,789
142	107,051	15,000	143,059	161,789
143	106,340	15,000	143,059	161,789
144	105,629	15,000	143,059	161,789
145	104,918	15,000	143,059	161,789
146	104,207	15,000	143,059	161,789
147	103,496	15,000	143,059	161,789
148	102,785	15,000	143,059	161,789
149	102,074	15,000	143,059	161,789
150	101,363	15,000	143,059	161,789
151	100,652	15,000	143,059	161,789
152	99,941	15,000	143,059	161,789
153	99,230	15,000	143,059	161,789
154	98,519	15,000	143,059	161,789
155	97,808	15,000	143,059	161,789
156	97,097	15,000	143,059	161,789
157	96,386	15,000	143,059	161,789
158	95,675	15,000	143,059	161,789
159	94,964	15,000	143,059	161,789
160	94,253	15,000	143,059	161,789
161	93,542	15,000	143,059	161,789
162	92,831	15,000	143,059	161,789
163	92,120	15,000	143,059	161,789
164	91,409	15,000	143,059	161,789
165	90,698	15,000	143,059	161,789
166	89,987	15,000	143,059	161,789
167	89,276	15,000	143,059	161,789
168	88,565	15,000	143,059	161,789
169	87,854	15,000	143,059	161,789
170	87,143	15,000	143,059	161,789
171	86,432	15,000	143,059	161,789
172	85,721	15,000	143,059	161,789
173	85,010	15,000	143,059	161,789
174	84,299	15,000	143,059	161,789
175	83,588	15,000	143,059	161,789
176	82,877	15,000	143,059	161,789
177	82,166	15,000	143,059	161,789
178	81,455	15,000	143,059	161,789
179	80,744	15,000	143,059	161,789
180	80,033	15,000	143,059	161,789
181	79,322	15,000	143,059	161,789
182	78,611	15,000	143,059	161,789
183	77,900	15,000	143,059	161,789
184	77,189	15,000	143,059	161,789
185	76,478	15,000	143,059	161,789
186	75,767	15,000	143,059	161,789
187	75,056	15,000	143,059	161,789
188	74,345	15,000	143,059	161,789
189	73,634	15,000	143,059	161,789
190	72,923	15,000	143,059	161,789
191	72,212	15,000	143,059	161,789
192	71,501	15,000	143,059	161,789
193	70,790	15,000	143,059	161,789
194	70,079	15,000	143,059	161,789
195	69,368	15,000	143,059	161,789
196	68,657	15,000	143,059	161,789
197	67,946	15,000	143,059	161,789
198	67,235	15,000	143,059	161,789
199	66,524	15,000	143,059	161,789
200	65,813	15,000	143,059	161,789

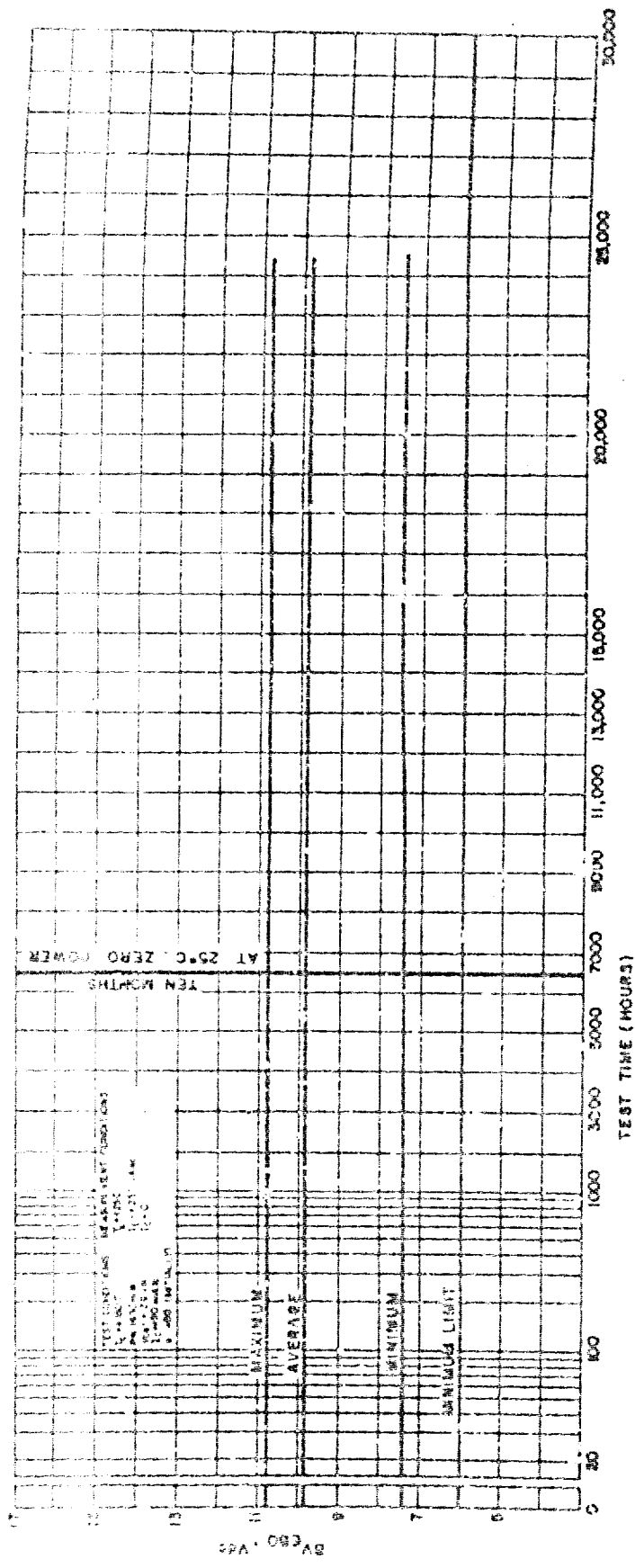
TOTAL FAILURES

TIME TO FAILURE (HRS)

QUANTITY

72  
2045

Figure 3-53. Parameter Trend Chart, R2050P1, Phase V, BV CBO



PM 5 STEPS 1 STEP			
STEADY VALUES IN VOLTS			
45 PARTS (FILLAGE NOT INCLUDED)			
TEST DOWNS	AVERAGE VALUE	STANDARD DEVIATION	MINIMUM VALUE
81	9.808	0.000	9.808
82	9.808	0.000	9.808
83	9.808	0.000	9.808
84	9.808	0.000	9.808
85	9.808	0.000	9.808
86	9.808	0.000	9.808
87	9.808	0.000	9.808
88	9.808	0.000	9.808
89	9.808	0.000	9.808
90	9.808	0.000	9.808
91	9.808	0.000	9.808
92	9.808	0.000	9.808
93	9.808	0.000	9.808
94	9.808	0.000	9.808
95	9.808	0.000	9.808
96	9.808	0.000	9.808
97	9.808	0.000	9.808
98	9.808	0.000	9.808
99	9.808	0.000	9.808
100	9.808	0.000	9.808
101	9.808	0.000	9.808
102	9.808	0.000	9.808
103	9.808	0.000	9.808
104	9.808	0.000	9.808
105	9.808	0.000	9.808
106	9.808	0.000	9.808
107	9.808	0.000	9.808
108	9.808	0.000	9.808
109	9.808	0.000	9.808
110	9.808	0.000	9.808
111	9.808	0.000	9.808
112	9.808	0.000	9.808
113	9.808	0.000	9.808
114	9.808	0.000	9.808
115	9.808	0.000	9.808
116	9.808	0.000	9.808
117	9.808	0.000	9.808
118	9.808	0.000	9.808
119	9.808	0.000	9.808
120	9.808	0.000	9.808
121	9.808	0.000	9.808
122	9.808	0.000	9.808
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124	9.808	0.000	9.808
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131	9.808	0.000	9.808
132	9.808	0.000	9.808
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148	9.808	0.000	9.808
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172	9.808	0.000	9.808
173	9.808	0.000	9.808
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179	9.808	0.000	9.808
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182	9.808	0.000	9.808
183	9.808	0.000	9.808
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185	9.808	0.000	9.808
186	9.808	0.000	9.808
187	9.808	0.000	9.808
188	9.808	0.000	9.808
189	9.808	0.000	9.808
190	9.808	0.000	9.808
191	9.808	0.000	9.808
192	9.808	0.000	9.808
193	9.808	0.000	9.808
194	9.808	0.000	9.808
195	9.808	0.000	9.808
196	9.808	0.000	9.808
197	9.808	0.000	9.808
198	9.808	0.000	9.808
199	9.808	0.000	9.808
200	9.808	0.000	9.808

TOTAL FAILURES: 0

TIME TO FAILURE (HRS): 20.19

QUANTITY: 1

Figure 3-100. Parameter Trend Chart, R2050P1, Phase V, RV EBO





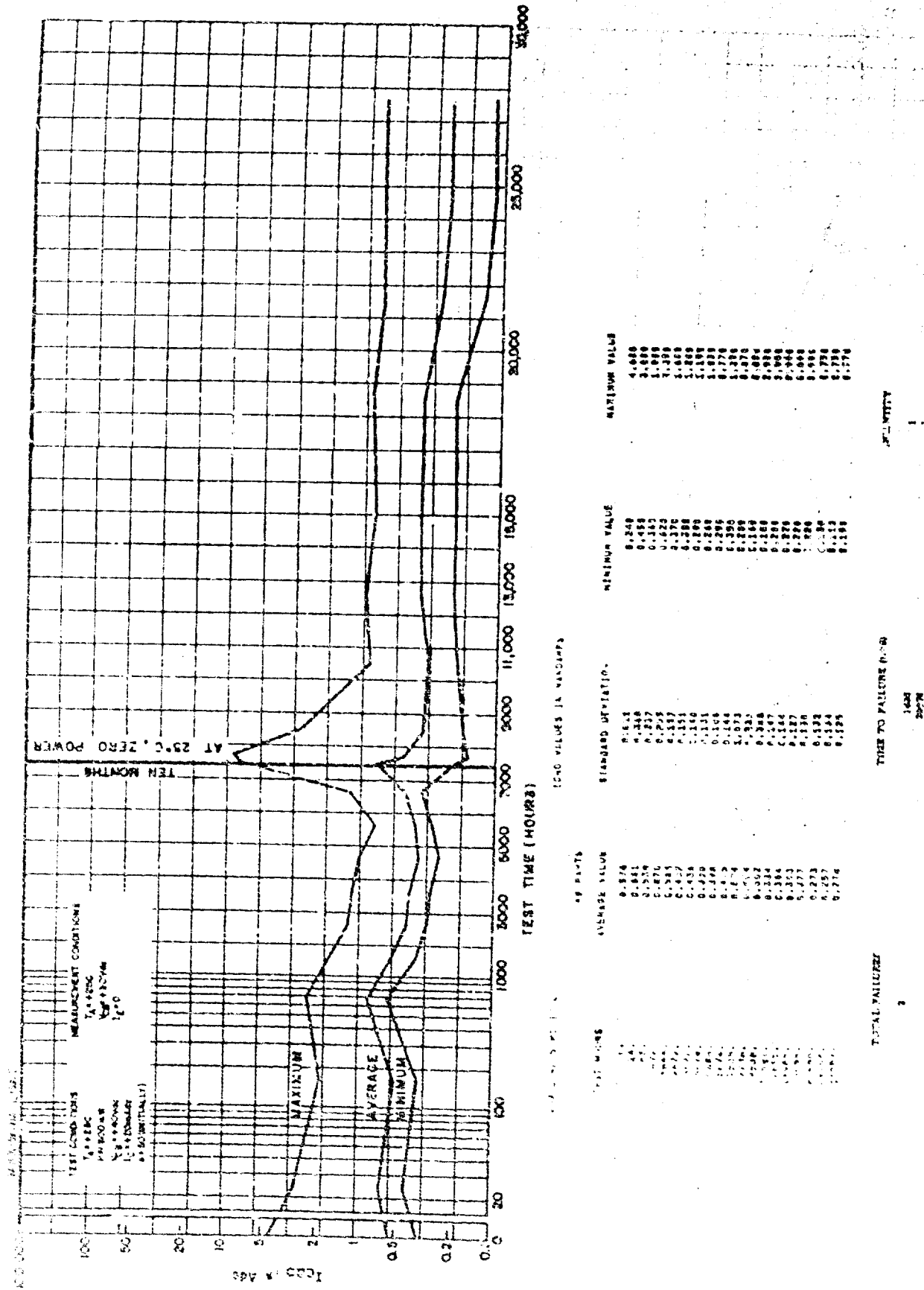
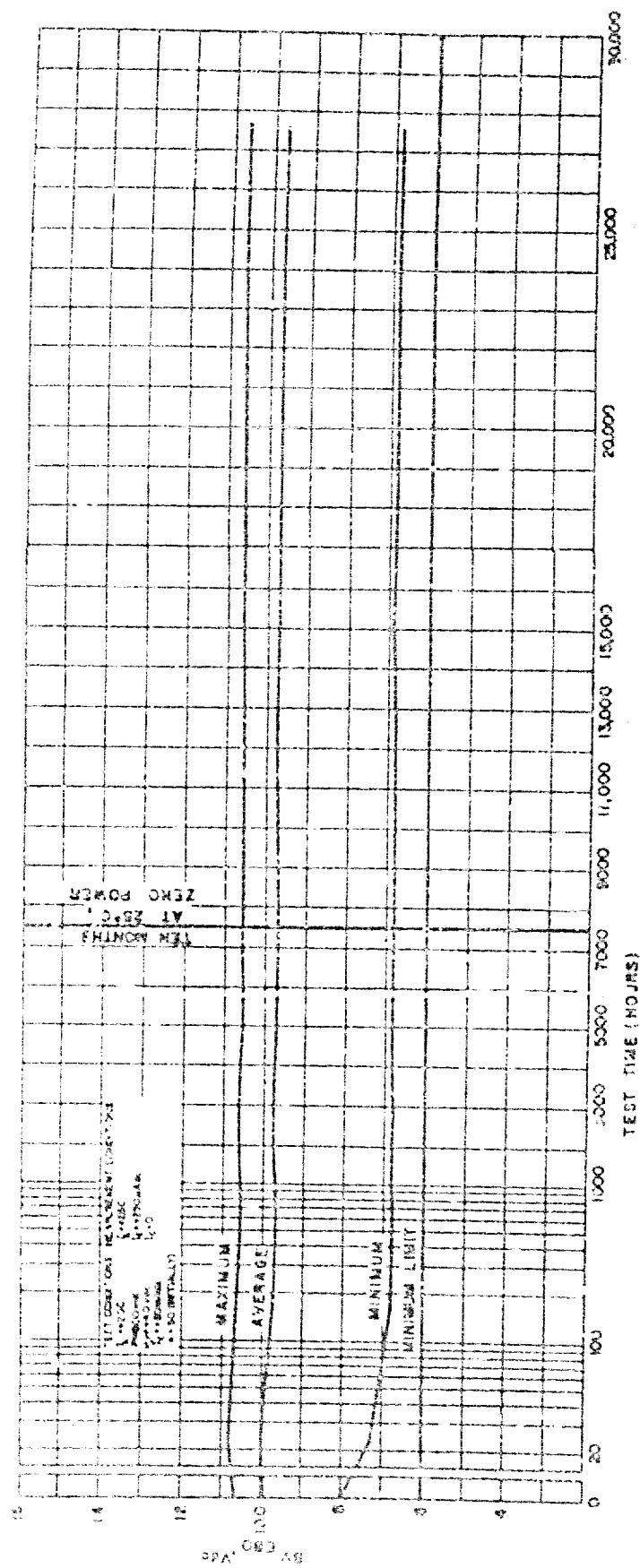


Figure 3-102. Parameter Trend Chart, R2050P1, Ambient Life,  $I_{CBO}$







AVG. & 92.5 PERCENT VOLTAGE

TEST HOURS

TEST HOURS	AVG. VALUE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
2	9.815	0.019	6.000	16.480
24	10.087	0.024	6.000	16.480
48	9.739	0.024	6.000	16.480
72	9.728	0.024	6.000	16.480
96	9.741	0.024	6.000	16.480
120	9.741	0.024	6.000	16.480
144	9.712	0.022	6.000	16.480
168	9.728	0.019	6.000	16.480
192	9.744	0.019	6.000	16.480
216	9.721	0.019	6.000	16.480
240	9.721	0.019	6.000	16.480
264	9.721	0.019	6.000	16.480
288	9.721	0.019	6.000	16.480
312	9.721	0.019	6.000	16.480
336	9.721	0.019	6.000	16.480
360	9.721	0.019	6.000	16.480
384	9.721	0.019	6.000	16.480
408	9.721	0.019	6.000	16.480
432	9.721	0.019	6.000	16.480
456	9.721	0.019	6.000	16.480
480	9.721	0.019	6.000	16.480
504	9.721	0.019	6.000	16.480
528	9.721	0.019	6.000	16.480
552	9.721	0.019	6.000	16.480
576	9.721	0.019	6.000	16.480
600	9.721	0.019	6.000	16.480
624	9.721	0.019	6.000	16.480
648	9.721	0.019	6.000	16.480
672	9.721	0.019	6.000	16.480
696	9.721	0.019	6.000	16.480
720	9.721	0.019	6.000	16.480
744	9.721	0.019	6.000	16.480
768	9.721	0.019	6.000	16.480
792	9.721	0.019	6.000	16.480
816	9.721	0.019	6.000	16.480
840	9.721	0.019	6.000	16.480
864	9.721	0.019	6.000	16.480
888	9.721	0.019	6.000	16.480
912	9.721	0.019	6.000	16.480
936	9.721	0.019	6.000	16.480
960	9.721	0.019	6.000	16.480
984	9.721	0.019	6.000	16.480
1008	9.721	0.019	6.000	16.480
1032	9.721	0.019	6.000	16.480
1056	9.721	0.019	6.000	16.480
1080	9.721	0.019	6.000	16.480
1104	9.721	0.019	6.000	16.480
1128	9.721	0.019	6.000	16.480
1152	9.721	0.019	6.000	16.480
1176	9.721	0.019	6.000	16.480
1200	9.721	0.019	6.000	16.480
1224	9.721	0.019	6.000	16.480
1248	9.721	0.019	6.000	16.480
1272	9.721	0.019	6.000	16.480
1296	9.721	0.019	6.000	16.480
1320	9.721	0.019	6.000	16.480
1344	9.721	0.019	6.000	16.480
1368	9.721	0.019	6.000	16.480
1392	9.721	0.019	6.000	16.480
1416	9.721	0.019	6.000	16.480
1440	9.721	0.019	6.000	16.480
1464	9.721	0.019	6.000	16.480
1488	9.721	0.019	6.000	16.480
1512	9.721	0.019	6.000	16.480
1536	9.721	0.019	6.000	16.480
1560	9.721	0.019	6.000	16.480
1584	9.721	0.019	6.000	16.480
1608	9.721	0.019	6.000	16.480
1632	9.721	0.019	6.000	16.480
1656	9.721	0.019	6.000	16.480
1680	9.721	0.019	6.000	16.480
1704	9.721	0.019	6.000	16.480
1728	9.721	0.019	6.000	16.480
1752	9.721	0.019	6.000	16.480
1776	9.721	0.019	6.000	16.480
1800	9.721	0.019	6.000	16.480
1824	9.721	0.019	6.000	16.480
1848	9.721	0.019	6.000	16.480
1872	9.721	0.019	6.000	16.480
1896	9.721	0.019	6.000	16.480
1920	9.721	0.019	6.000	16.480
1944	9.721	0.019	6.000	16.480
1968	9.721	0.019	6.000	16.480
1992	9.721	0.019	6.000	16.480
2016	9.721	0.019	6.000	16.480
2040	9.721	0.019	6.000	16.480
2064	9.721	0.019	6.000	16.480
2088	9.721	0.019	6.000	16.480
2112	9.721	0.019	6.000	16.480
2136	9.721	0.019	6.000	16.480
2160	9.721	0.019	6.000	16.480
2184	9.721	0.019	6.000	16.480
2208	9.721	0.019	6.000	16.480
2232	9.721	0.019	6.000	16.480
2256	9.721	0.019	6.000	16.480
2280	9.721	0.019	6.000	16.480
2304	9.721	0.019	6.000	16.480
2328	9.721	0.019	6.000	16.480
2352	9.721	0.019	6.000	16.480
2376	9.721	0.019	6.000	16.480
2400	9.721	0.019	6.000	16.480
2424	9.721	0.019	6.000	16.480
2448	9.721	0.019	6.000	16.480
2472	9.721	0.019	6.000	16.480
2496	9.721	0.019	6.000	16.480
2520	9.721	0.019	6.000	16.480
2544	9.721	0.019	6.000	16.480
2568	9.721	0.019	6.000	16.480
2592	9.721	0.019	6.000	16.480
2616	9.721	0.019	6.000	16.480
2640	9.721	0.019	6.000	16.480
2664	9.721	0.019	6.000	16.480
2688	9.721	0.019	6.000	16.480
2712	9.721	0.019	6.000	16.480
2736	9.721	0.019	6.000	16.480
2760	9.721	0.019	6.000	16.480
2784	9.721	0.019	6.000	16.480
2808	9.721	0.019	6.000	16.480
2832	9.721	0.019	6.000	16.480
2856	9.721	0.019	6.000	16.480
2880	9.721	0.019	6.000	16.480
2904	9.721	0.019	6.000	16.480
2928	9.721	0.019	6.000	16.480
2952	9.721	0.019	6.000	16.480
2976	9.721	0.019	6.000	16.480
3000	9.721	0.019	6.000	16.480

TOTAL FAILURES: 7

TIME TO FAILURE (HRS): 1641

QUANTITY: 1

Figure 3-105. Parameter Trend Chart, R2050P1, Ambient Life, BV ESO

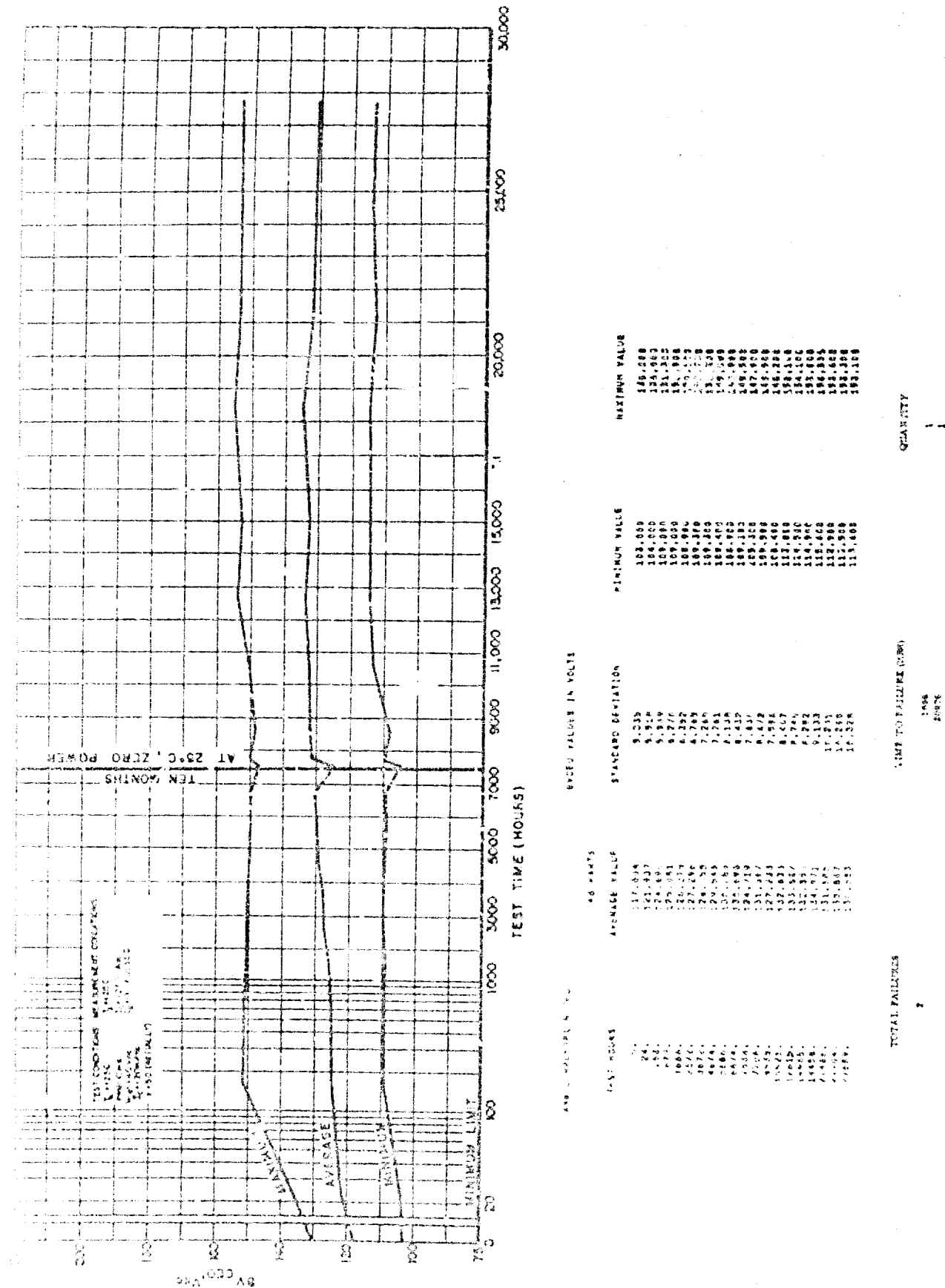
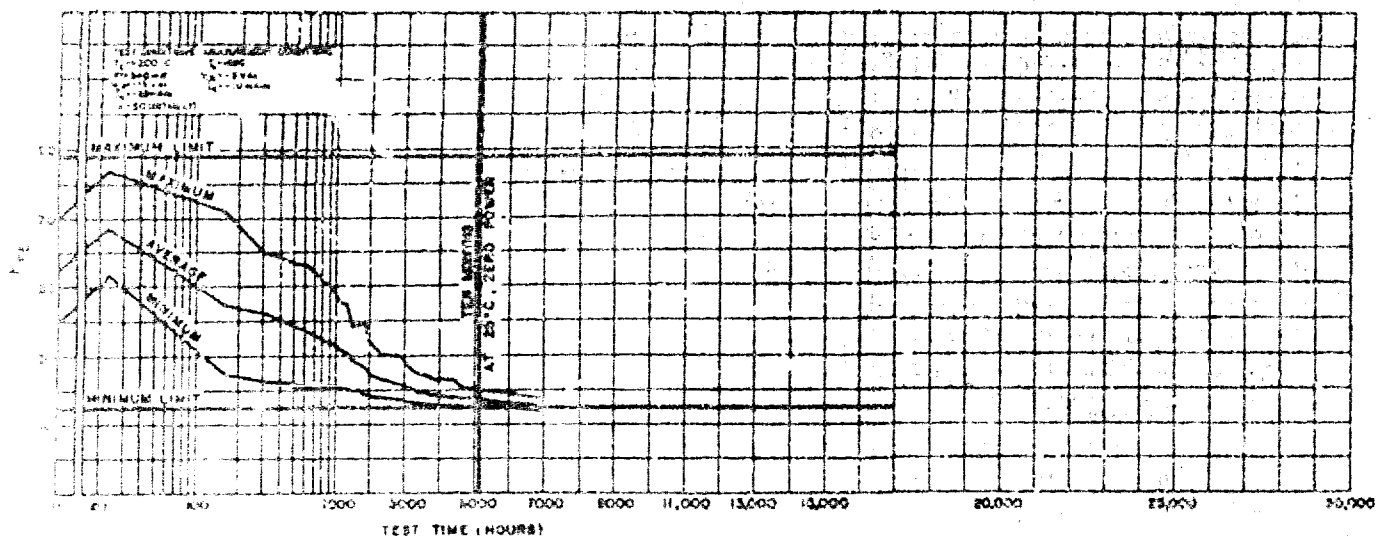


Figure 3-106. Parameter Trend Chart, R2950P1, Ambient Life, 3V CPO





R4041 P1  
Phase IV  
hFE

Test Stop	Average	Minimum	Maximum
0	54.214	70.400	60.570
44	67.150	75.670	64.000
120	66.957	80.370	71.000
209	62.271	80.500	67.000
407	59.507	75.500	67.000
614	57.507	72.000	64.000
755	55.500	71.100	63.000
1000	55.507	71.100	63.750
1342	51.500	69.700	60.500
1500	50.711	69.000	60.500
1719	48.007	64.500	52.500
1900	47.507	60.000	50.500
1960	45.500	58.000	48.750
2022	44.000	58.000	46.750
2100	42.000	55.000	46.000
2410	42.000	50.000	45.000
2501	42.570	47.500	42.500
2740	40.400	47.000	40.500
2741	42.000	47.500	40.500
2800	40.770	45.000	47.000
3000	39.000	40.000	45.500
3110	38.207	40.000	44.000
3000	38.207	40.000	44.000
3747	38.710	40.000	42.500
4020	38.000	38.000	40.000
4000	38.000	38.000	38.000
4001	38.000	38.000	38.000
4022	38.000	38.000	38.000
4000	37.500	38.000	38.000
4410	38.000	38.000	38.000
4300	37.500	38.000	38.000
4710	37.210	38.000	38.000
5000	37.000	38.000	38.000
5000	37.000	38.000	38.000

TOTAL FAILURES

TIME TO FAILURE (HRS)

QUANTITY

44

50

1

100

1

200

1

400

1

600

1

700

1

1000

1

1100

1

1200

1

1400

1

2000

1

2100

1

2410

1

2500

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2700

1

2740

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2800

1

3000

1

3110

1

3700

1

4000

1

4001

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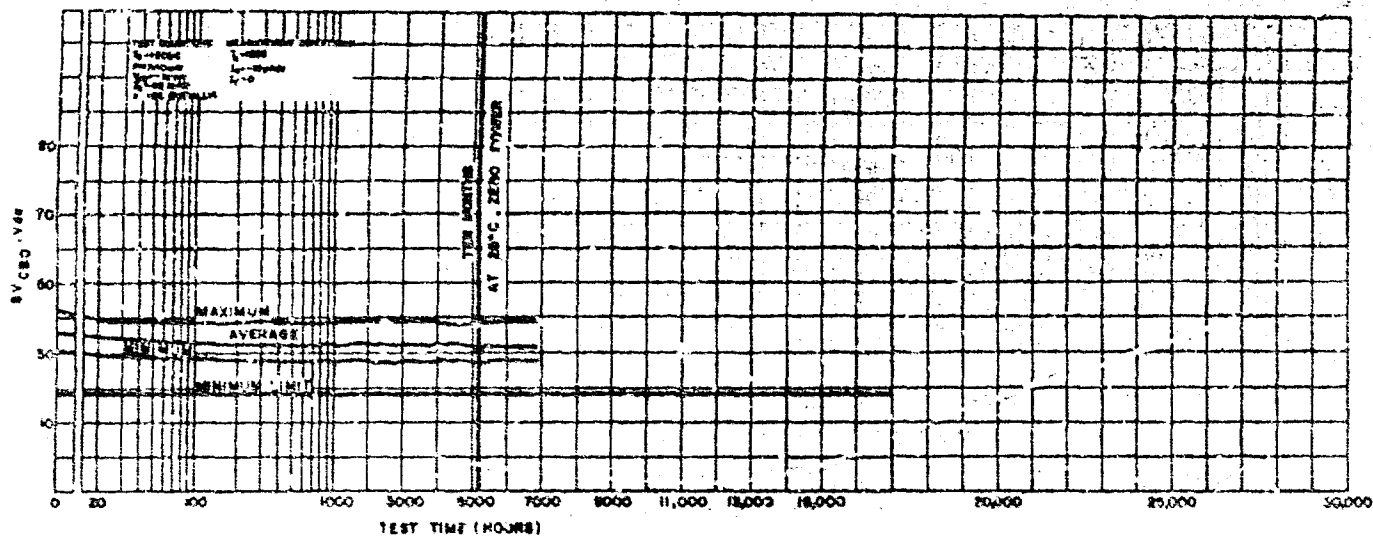
4022

1

4000

1

Figure 3-108. Parameter Trend Chart, R4041 P1, Phase IV, h<sub>FE</sub>



R4041 P1  
Phase 4  
BV\_CBO

Test Event	Average	Minimum	Maximum
0	50.399	31.882	61.280
5	54.381	39.714	60.210
100	50.411	34.639	60.400
500	50.179	30.340	59.300
997	50.377	30.340	59.300
444	50.398	31.340	60.310
700	50.394	30.340	59.300
1000	50.130	30.130	59.300
1100	50.130	30.300	59.300
1200	50.379	30.400	59.300
1300	50.141	30.300	59.370
1400	50.310	30.300	59.300
1500	50.300	30.300	59.300
1600	50.111	30.470	59.300
1700	50.379	30.400	59.310
1800	50.379	30.300	59.300
1900	50.390	30.300	59.300
2000	50.390	30.300	59.300
2100	50.390	30.300	59.300
2200	50.390	30.300	59.300
2300	50.390	30.300	59.300
2400	50.390	30.300	59.300
2500	50.390	30.300	59.300
2600	50.390	30.300	59.300
2700	50.390	30.300	59.300
2800	50.390	30.300	59.300
2900	50.390	30.300	59.300
3000	50.390	30.300	59.300
3100	50.390	30.300	59.300
3200	50.390	30.300	59.300
3300	50.390	30.300	59.300
3400	50.390	30.300	59.300
3500	50.390	30.300	59.300
3600	50.390	30.300	59.300
3700	50.390	30.300	59.300
3800	50.390	30.300	59.300
3900	50.390	30.300	59.300
4000	50.390	30.300	59.300
4100	50.390	30.300	59.300
4200	50.390	30.300	59.300
4300	50.390	30.300	59.300
4400	50.390	30.300	59.300
4500	50.390	30.300	59.300
4600	50.390	30.300	59.300
4700	50.390	30.300	59.300
4800	50.390	30.300	59.300
4900	50.390	30.300	59.300
5000	50.390	30.300	59.300

TOTAL FAILURES  
44

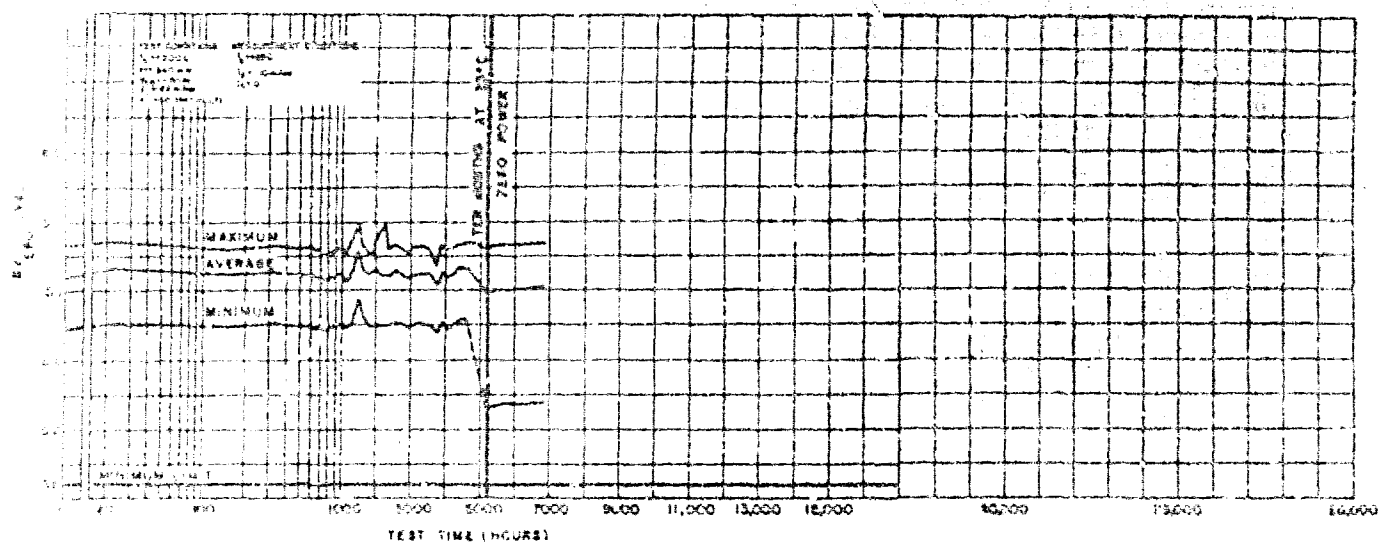
TIME TO FAILURE (HRS)

QUANTITY

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100	1
200	1
400	1
900	1
700	1
1000	4
1100	9
1200	9
1300	1
1400	1
1500	1
1600	1
1700	1
1800	1
1900	1
2000	1
2100	1
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3700	1
3800	1
3900	1
4000	1
4100	1
4200	1
4300	1
4400	1
4500	1
4600	1
4700	1
4800	1
4900	1
5000	1

Figure 3-109. Parameter Trend Chart, R4041P1, Phase IV, BV<sub>CBO</sub>





Serial P1  
Phase 1  
TVA 207

TIME HOURS	MAXIMUM	AVERAGE	MINIMUM
0	0.000	0.000	0.000
10	0.000	0.000	0.000
20	0.000	0.000	0.000
30	0.000	0.000	0.000
40	0.000	0.000	0.000
50	0.000	0.000	0.000
60	0.000	0.000	0.000
70	0.000	0.000	0.000
80	0.000	0.000	0.000
90	0.000	0.000	0.000
100	0.000	0.000	0.000
110	0.000	0.000	0.000
120	0.000	0.000	0.000
130	0.000	0.000	0.000
140	0.000	0.000	0.000
150	0.000	0.000	0.000
160	0.000	0.000	0.000
170	0.000	0.000	0.000
180	0.000	0.000	0.000
190	0.000	0.000	0.000
200	0.000	0.000	0.000
210	0.000	0.000	0.000
220	0.000	0.000	0.000
230	0.000	0.000	0.000
240	0.000	0.000	0.000
250	0.000	0.000	0.000
260	0.000	0.000	0.000
270	0.000	0.000	0.000
280	0.000	0.000	0.000
290	0.000	0.000	0.000
300	0.000	0.000	0.000
310	0.000	0.000	0.000
320	0.000	0.000	0.000
330	0.000	0.000	0.000
340	0.000	0.000	0.000
350	0.000	0.000	0.000
360	0.000	0.000	0.000
370	0.000	0.000	0.000
380	0.000	0.000	0.000
390	0.000	0.000	0.000
400	0.000	0.000	0.000
410	0.000	0.000	0.000
420	0.000	0.000	0.000
430	0.000	0.000	0.000
440	0.000	0.000	0.000
450	0.000	0.000	0.000
460	0.000	0.000	0.000
470	0.000	0.000	0.000
480	0.000	0.000	0.000
490	0.000	0.000	0.000
500	0.000	0.000	0.000

Serial P1

Phase 1

TVA 207

Figure 3-110. Parameter Trend Chart, R400 P1, Phase IV, BV

EBD

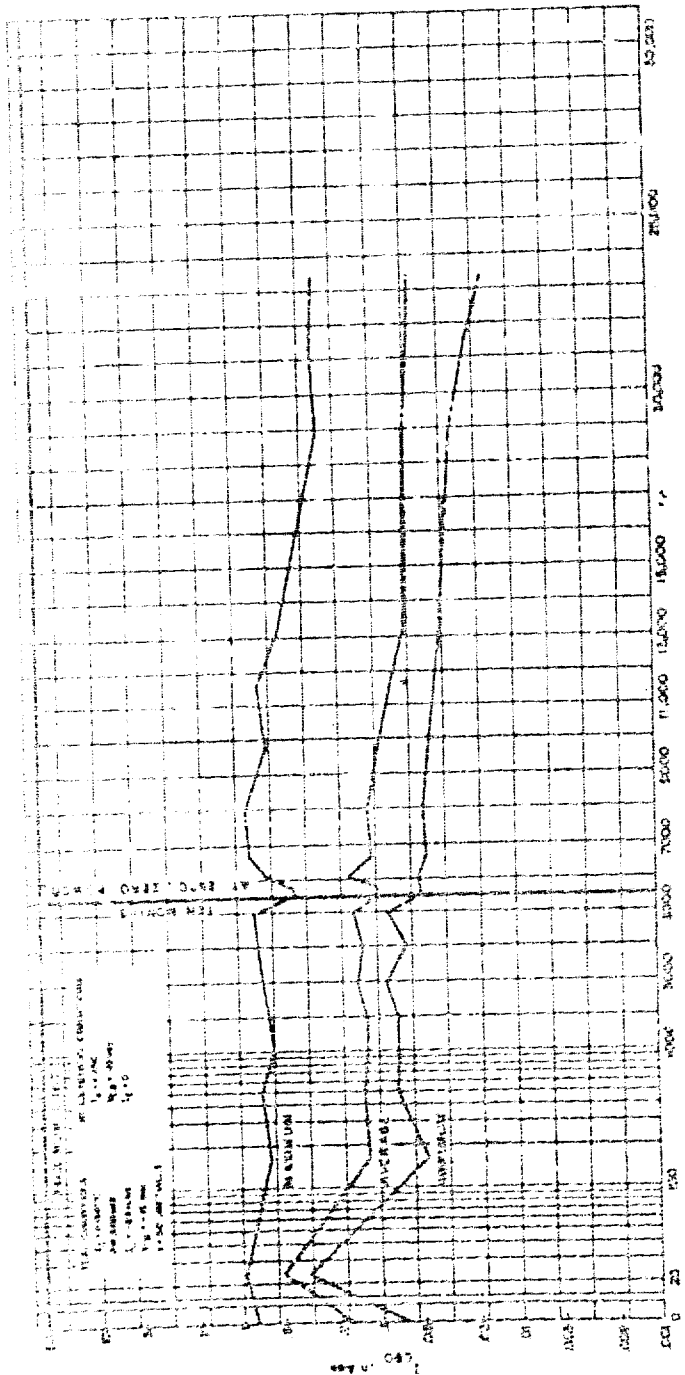


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TABLE 90. SUMMARY OF DATA

TABLE 91. SUMMARY OF DATA

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TABLE 100. SUMMARY OF DATA

Figure 2-11. Parameter Trend Chart, R404PI, Phase V, I CBO







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13. ABSTRACT  
This is the final report on Contract AF30(602)-3968. Long term tests to 30,000 hours were continued to provide correlation data for accelerated test results. A theory of life governing processes for electronic parts is given. The data is analyzed and presented to provide estimates of the life governing processes for each part type. A physics of failure study of mica, ceramic, porcelain, and glass capacitors was also performed and the results are included.

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## KEY WORDS

Accelerated Testing  
Step-Stress  
Failure Mechanisms  
Degradation Models

## LINK A

## LINK B

## LINK C

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